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400th Anniversary of the discovery of Spitsbergen by the Dutch explorer Willem Barentsz Haartsen, Tialda; Hacquebord, Louwrens

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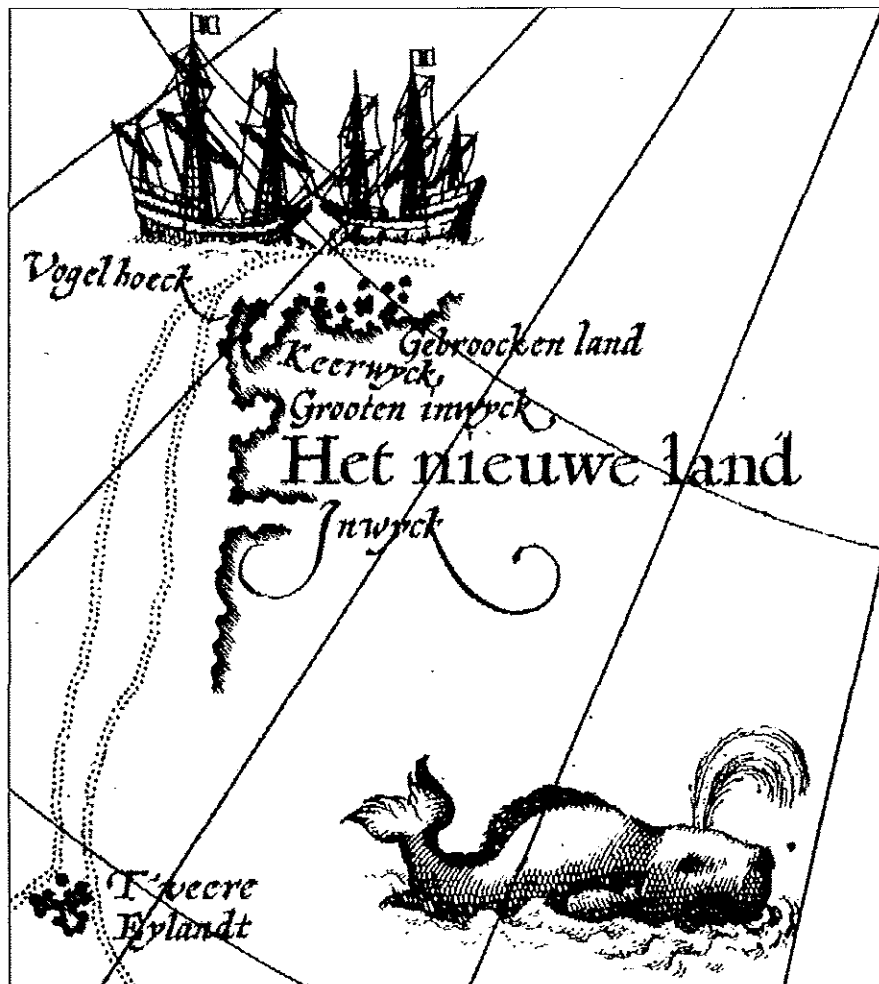
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400th anniversary of the discovery of Spitsbergen by the Dutch explorer Willem Barentsz



Tialda Haartsen and Louwrens Hacquebord

***400th anniversary of the discovery
of Spitsbergen by the Dutch
explorer Willem Barentsz***



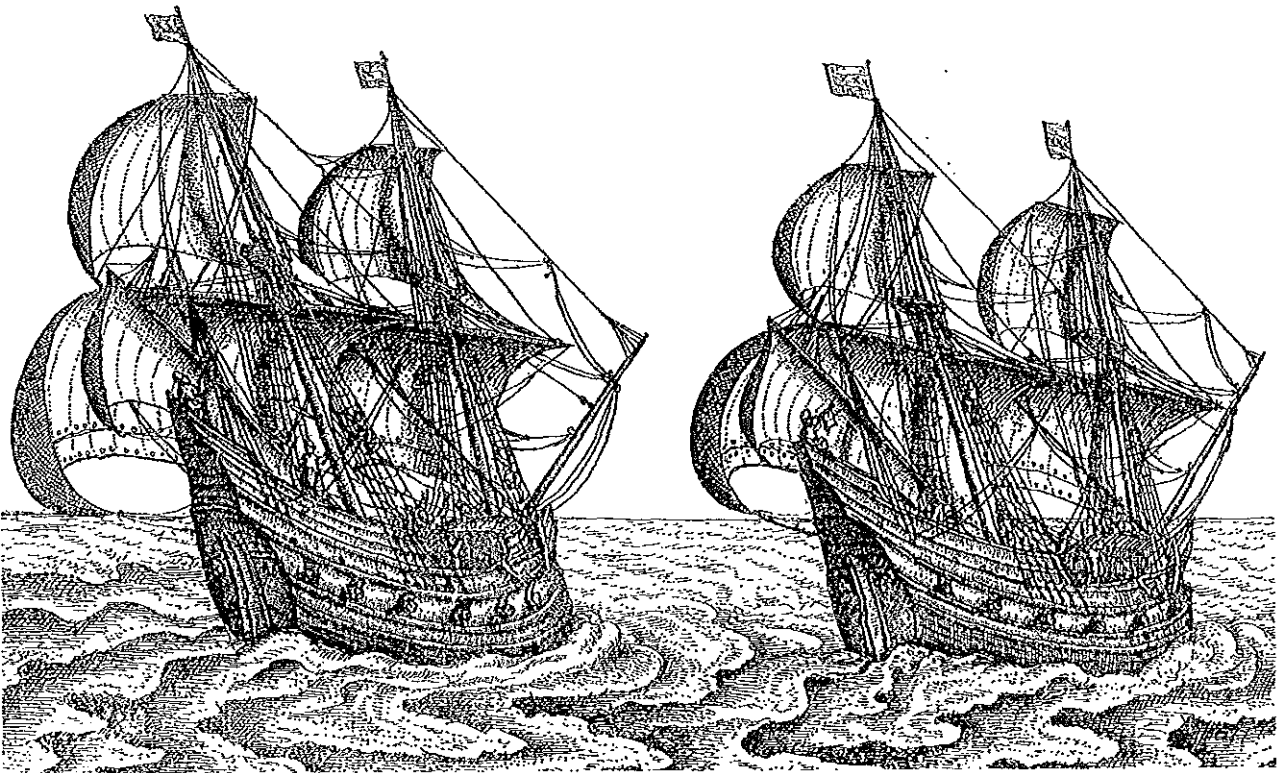
Tialda Haartsen and Louwrens Hacquebord

June 17, 1596

Weather calm until noon. We then found the latitude of $80^{\circ} 10'$. We tacked, having the wind right ahead to keep clear from the ice...

We then saw land...

It was high land, and entirely covered with snow.



Willem Barentsz

1596-1996

Preface

On June 17th 1996 it will be exactly 400 years since the Dutch discovered Spitsbergen. This anniversary is marked by an exhibition of the discovery and the early Dutch exploration and exploitation of Spitsbergen.

In 1596, two Dutch ships under the direction of Willem Barentsz sailed for the third time to the North to search for a sailing route to China and Cathay. On June 17th, at a latitude of 80°10', they discovered a high land, which was entirely covered with snow. The land consisted only of mountains and pointed hills, so the discoverers named it the New Land or Spitsbergen. The discovery of Spitsbergen was followed by a period of exploitation. In the 1610s, whale-fishery developed in the waters of Spitsbergen. The whalers established whaling stations at several places along the west coast to boil the blubber of the whales into train-oil. In this way, the living resources of Spitsbergen were exploited for two hundred years. After that, the whales near Spitsbergen almost became extinct because of the intensive whaling. During the period of whale-fishery, the exploration and mapping of the archipelago continued.

The exhibition on the occasion of the 400th anniversary of the Dutch discovery of Spitsbergen will take place in the university of Longyearbyen on Svalbard from July until September 1996. This booklet has been produced in order to provide some background information, and serves as memento to commemorate the anniversary of the discovery of Spitsbergen and this exhibition.

The exhibition is the result of a cooperation of the Norsk Polarinstitut and the Arctic Center of the University of Groningen. The expressive objects and replica's are taken care of by Gerard Wösten. Financial and material support was received from:

The Norwegian Ministry of Environment

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Tialda Haartsen and Louwrens Hacquebord

The discovery of Spitsbergen

Sixteenth century worldview

Up to the mid-point of the 16th century, Vardø in Finnmark, Norway, was the northernmost place known to man. Beyond Vardø, everything was a big, dark mystery. Rumours about the North Pole area were based on a mixture of truth and fantasy. The coastal line in the east was assumed to have enormous rivers full of ice, flowing into a sea with huge monsters. It was a windy and misty area, populated by terrifying people, like savages with horse-hoofs and dogs-heads, or headless people with eyes in their chests. It was also thought that the icy climate resulted in frozen people stiffened by the cold, who only became alive in the short summer season.

The North Pole itself was also a subject of speculation. Since the early Middle Ages, several opinions about the geography of the North Pole region had circulated. One of them stated that the North Pole consisted of land, which attached Greenland to the Euro-Asiatic continent, while another claimed that there was only a frozen sea north of Scandinavia. A third opinion pretended the existence of an enormous eddy in the north, surrounded by islands, where sea-currents would come together here and fall into a ravine (fig. 1).

In the last decades of the 16th century, the famous Flander cartographer Gerhard Mercator determined the geographical opinion of the polar region. His world map of 1569 pictured the North Pole as a huge black rock in an inland sea, fed by the oceans via four powerful rivers. These rivers demarcated four polar islands, of which Novaya Zemlya was believed to be one. The Barentsz Sea was thought to be a dividing river. The magnetic rock, which was assumed to attract ships with iron nails in their frames, was placed between Asia and America.

Most of the 16th century cartographers adopted Mercator's picture of the North Pole, but not everyone believed in the existence of land in the polar region. Some people believed that the North Pole area con-

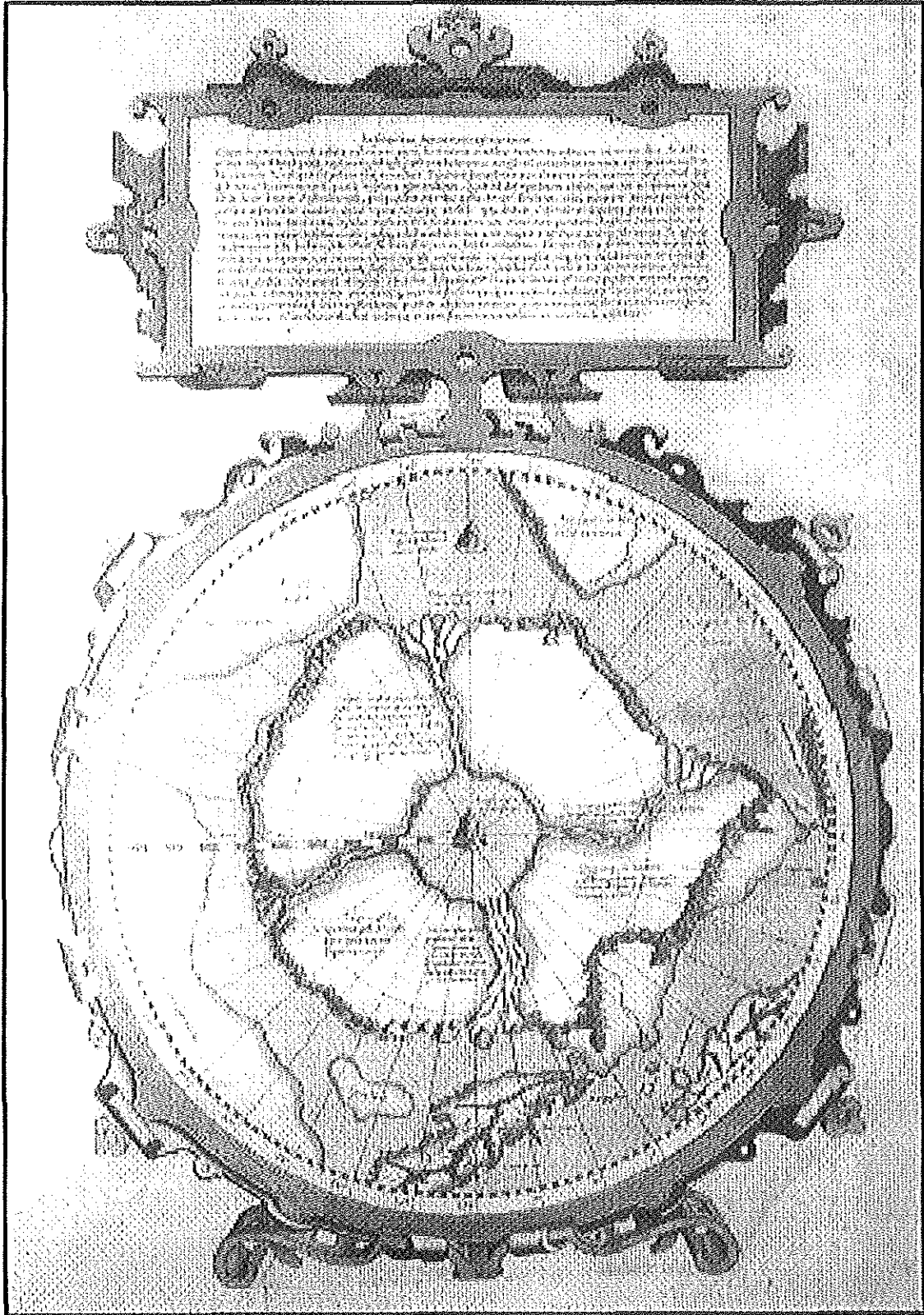


Figure 2: Mercator, 1569.

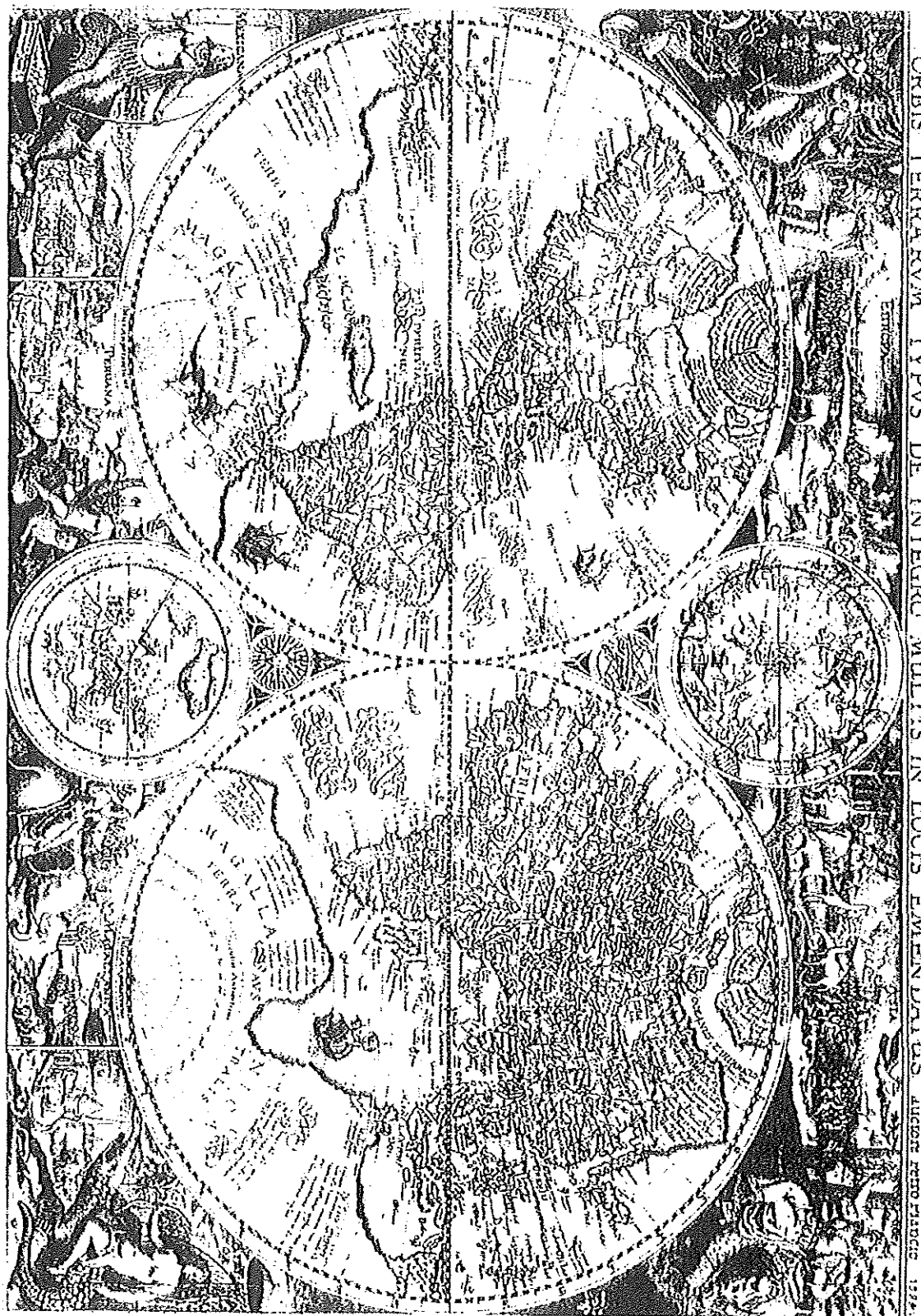


Figure 3: Plancius, 1594.

While searching for a north-east trade route to China and Cathay, the English arrived in the White Sea in the 1550s. They established trade with Russia, and for some decades their search for a trade route with China was postponed. Some years later the first Dutch ships arrived in the northern seas. Around 1560, a Dutch trading post was founded on the Kola peninsula. However, the main reason for the Dutch presence in the Arctic seas was to find a northern sea route to China. In 1565, two Antwerp merchants sailed to the White Sea and travelled over land to Moscow. They sent Oliver Brunel to Kholmogory on the coast of the White Sea, to establish trade relations with Russia. From there, Brunel made several voyages to Siberia and Samoyed country, and as the first West-European, he reached to river Ob. By doing so, Brunel became the first Dutch explorer in the Arctic. After living some years in Kholmogory, Oliver Brunel returned to Holland.

Balthasar de Moucheron, a rich merchant from Middelburg (Holland) initiated a voyage of two ships to the White Sea in 1578. Because of his experience, Brunel was on board one of the ships. At the mouth of the river Dwina, the trading post Novo-Kholmogory was founded, later known as Archangel. Brunel still wanted to search for the north-east trade route to China, and thought that by sailing up the river Ob, the rich country of Cathay was within reach. De Moucheron was willing to finance the expedition, and in 1584 Brunel sailed out. Unfortunately, he was shipwrecked in the mouth of the Pechora river and never returned. Brunel's voyages provided a lot of information about the Russian north east, which was of use for the Dutch on their continuing search for a north east passage.

Balthasar de Moucheron continued the gathering of information on the possibilities of a north-east passage to China and tried to persuade the States of Zealand to cooperate with an expedition. The States of Zealand and Holland both decided to fit out a ship, at their own expense. The States General, as the Dutch government was called, instructed the ships to sail through the Waigatsj Strait, on the south side of Novaya Zemlya, and then across the Kara Sea to Cape Tabin. Beyond Cape Tabin, the coastal line was assumed to bend southward to China. The

cartographer Petrus Plancius was convinced that the passage to China only existed north of Novaya Zemlya, and the city of Amsterdam fitted out a ship and a yacht to sail Plancius' route. Willem Barentsz was the pilot of the ship.

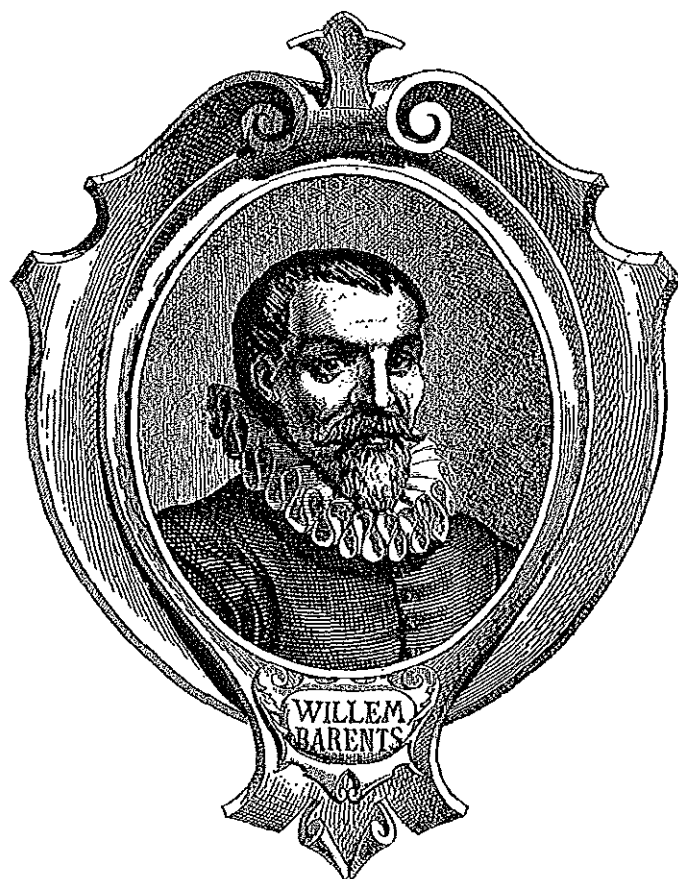


Figure 4: Willem Barentsz.

The Dutch expedition left Holland in June 1594. As soon as Novaya Zemlya was in sight, the ships separated. Willem Barentsz sailed to the north of Novaya Zemlya. With difficulty, he manoeuvred the ships through the ice-fields, and reached the northernmost part of the island. There, the route to the north and the east was blocked by ice. Barentsz went back again and charted the west coast of Novaya Zemlya. Near the Waigatsj Strait he met the other ships. They had been more fortunate. After sailing through the Waigatsj Strait, they had discovered an

island which they had called Stateneiland. From there, they had sailed northeast through a completely ice-free Kara Sea, and had seen the coastal land on the horizon. Assuming this land was Cape Tabin, they returned to Holland, thinking that the passage to Asia was discovered.

A commercial expedition of seven ships left Holland in July 1595. Their mission was to sail to China and establish trade relations. They were expected to return to the Netherlands in the autumn of 1596. After a hard journey the ships arrived at the Waigatsj Strait, where they found the Kara Sea completely filled with ice. The ships did reach Stateneiland, but there the route was blocked by ice. Willem Barentsz, again one of the steersmen, proposed wintering in the North, which would give them a lead on the journey the next year. His plan was rejected and the disappointed explorers sailed for home. Most of the Dutch merchants and the States General held no hope in finding a northern passage, and their attention was turned to a trade route via the Cape of Good Hope.

The discovery of Spitsbergen

The cartographer Plancius was one of the few who still believed in a northern passage, and managed to arrange a third voyage to the North. Two ships, under the direction of Willem Barentsz, left Holland in May 1596 to sail a route marked out by Plancius. From the northcape of Norway, the ships were to follow a northern route via the North Pole, in order to reach China through an ice-free polar sea.

Sailing north, the two ships discovered an island at 75° North latitude. The crew saw polar bears near the island, so they called it Bear Island. At roughly 80° North latitude, the ships met the edge of the pack ice. The expedition continued eastward along the edge of the pack ice and discovered the northern coast of a land. This land looked like a wilderness, with rocky inlets along the coast and high glaciers ending in the sea. The explorers called "the New Land", or Spitsbergen.

Willem Barentsz:

June 24. Before noon it was calm, with the wind S.W. The land along which we shaped our course, was for the greatest part broken, rather high, and consisted only of mountains and pointed hills; for which reason we gave it the name of 'Spitsbergen' (Spits = pointed, bergen = mountains).

Sailing southward, the expedition explored the west coast of this newly discovered land (fig. 5). Because the men were searching for a passage to China, they tried to pass Spitsbergen on the south side and sail northward from there. Again their route was blocked by ice, so they sailed back to Bear Island, where the ships separated. One of them sailed north on a second attempt, whilst the other, with Willem Barentsz on board, went eastward to again investigate the passage north of Novaya Zemlya. They passed Ice Cape, the northern part of Novaya Zemlya and sailed to the southeast. Very soon the ship got stuck in the ice of the Kara Sea. Barentsz and his crew were forced to build a house



Figure 5: The west coast of Spitsbergen.

on Novaya Zemlya, the so called "Behouden Huys" (fig. 6), to survive the polar winter. They became the first Europeans to spend a winter so far north. Only on 14 June 1597, were they able to set out in two sloops to travel back to Holland. They arrived in Kola on the 2nd of September. On the way back, Barentsz died on the 20th of June. Of the 17 winterers, 12 safely reached Holland.

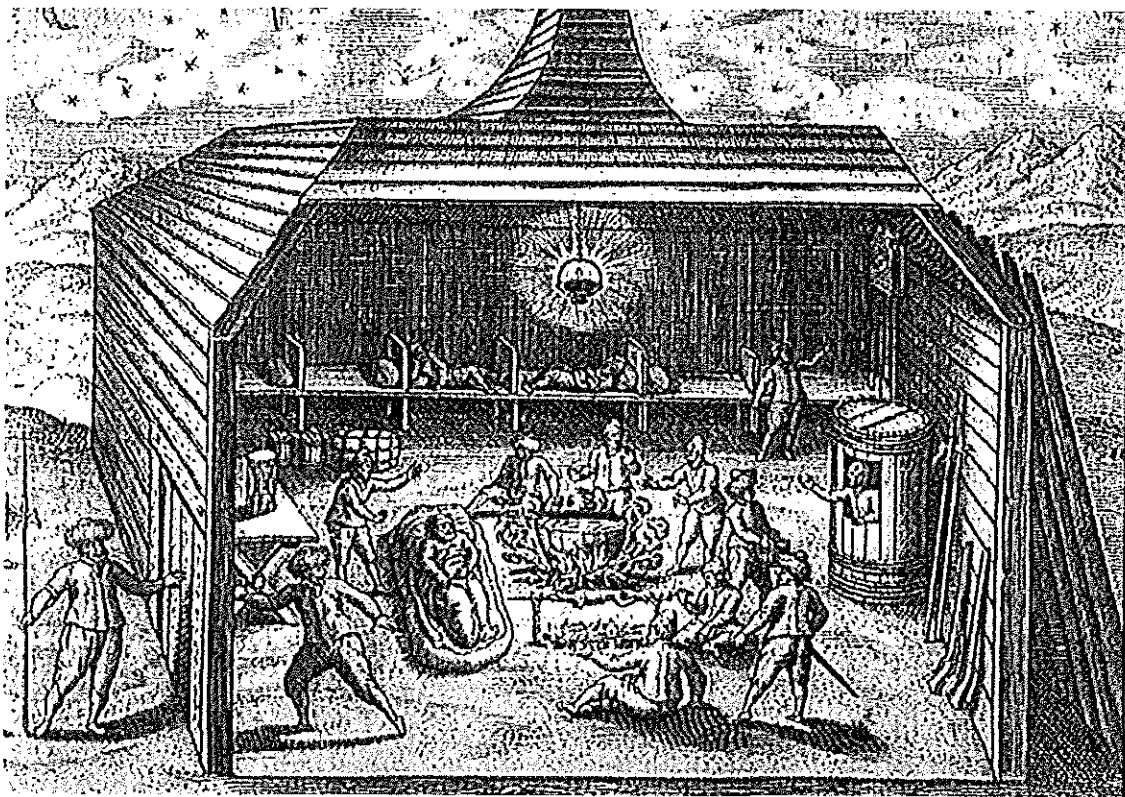


Figure 6: The Behouden Huys (Safe House).

Although a passage to China had still not been found, the last Dutch voyage contributed significantly to the knowledge of the polar world. The most important result of the voyage was the so-called Barentsz chart of the polar region, published by Cornelis Claesz in 1598 (fig. 7). For the first time, the north pole region was depicted as a sea without polar islands, in accordance with Plancius' ideas. Only the Polus Magnetis rising like a huge rock out of the polar sea, was still a reminder of Mercator's old concept. A large part of the north and west

coasts of Spitsbergen are marked as "Het Nieuwe Land" (the New Land) on this polar chart. Bear Island and Novaya Zemlya are also depicted, as is the sailing route of the ship.

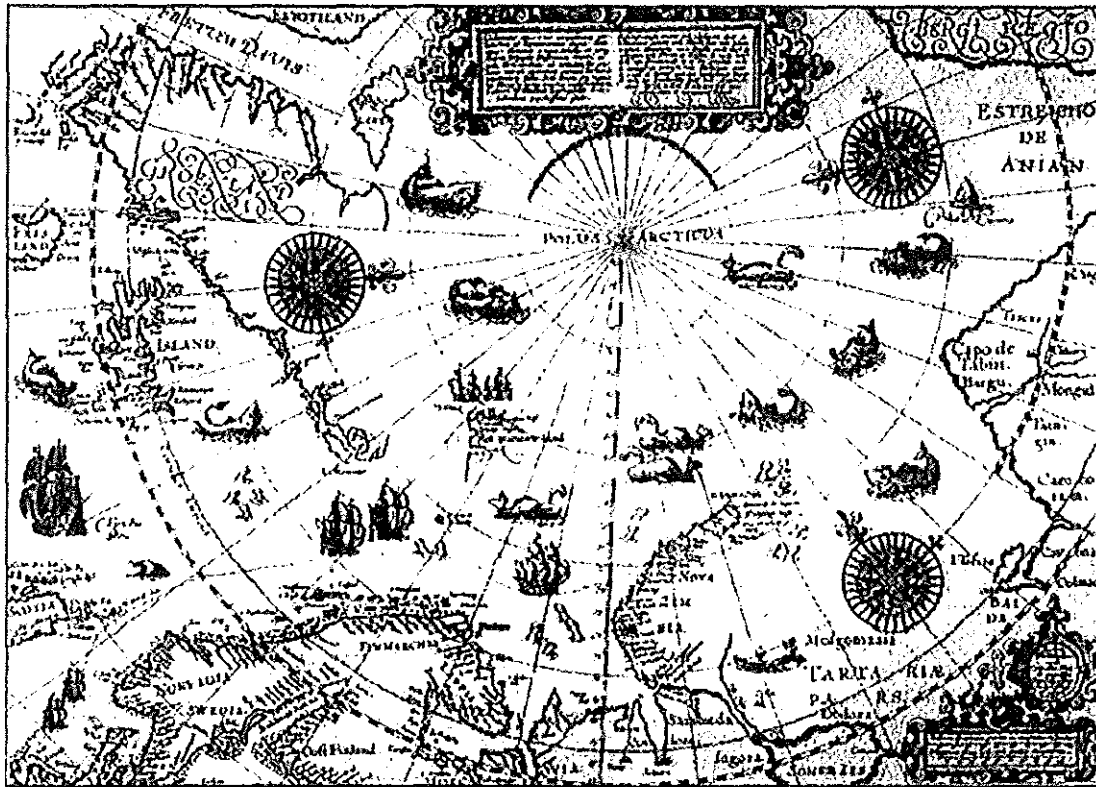


Figure 7: The Barentsz chart. Cornelisz Cleasz, 1598.

The Vikings and Svalbard

Willem Barentsz was not the first person to explore the Arctic seas and islands. The Vikings, who were expanding from Scandinavia from the end of the 8th century onwards, were renowned for their skill in sailing. Also the south west part of the Barentsz Sea area was sailed by them. Some Icelandic annals record the finding of Svalbarð or Svalbarði by the Vikings in 1194. The location of this Svalbarð is a matter of discussion.

Landnámabók (the Book of Settlements) describes:

According to learned men it takes seven days to sail from Stad in Norway westward to Horn on the east coast of Iceland, and from Snæfellness four days west across the ocean to Greenland by the shortest route. ... From Reykjaness in South Iceland it takes five days to Slyne Head in Ireland, four days from Langaness in North Iceland to Svalbarði in the Arctic Sea.

The Old Icelandic Svalbarði was first identified with Greenland's east coast. Nowadays, both Jan Mayen and the west coast of Spitsbergen are discussed as possible locations of Svalbarði. The confusion about the specific location of Svalbarð emerges from the fact that Old Icelandic dægr (day) means both "day of twenty-four hours" and "a period of twelve hours".

Sailing from Stad in Norway to Horn in Iceland is said to be seven dægr in the Landnámabók. By using the "twelve hour" definition of dægr, these seven dægr would correspond with 3.5 days sailing. As the shortest distance from Norway to Iceland is 525 nautical miles, twenty-four hours of sailing amounts to 150 miles. The sailing distance from North Iceland to Svalbarð is said to be four dægr. In four Icelandic dægr of twelve hours, about 300 miles can be sailed. Since one has to cross 835.5 miles to reach Spitsbergen from Iceland, Spitsbergen cannot have been reached in four "twelve hour" dægr. Jan Mayen, situated 311.6 miles from Iceland, might have been the island which was discovered by the Vikings, considering an Icelandic dægr of twelve hours.

The Landnámabók records the time needed for sailing from Iceland to Ireland (700 nautical miles) as five dægr. Apparently, here dægr denotes a period of twenty-four hours. Using this definition, four dægr of sailing from Iceland to Svalbarð would correspond with a sailed distance of about 600 miles. Since this falls below 835.5 miles one has to cross to reach Spitsbergen, it is unlikely that the Svalbarð of the Vikings conforms to Spitsbergen.

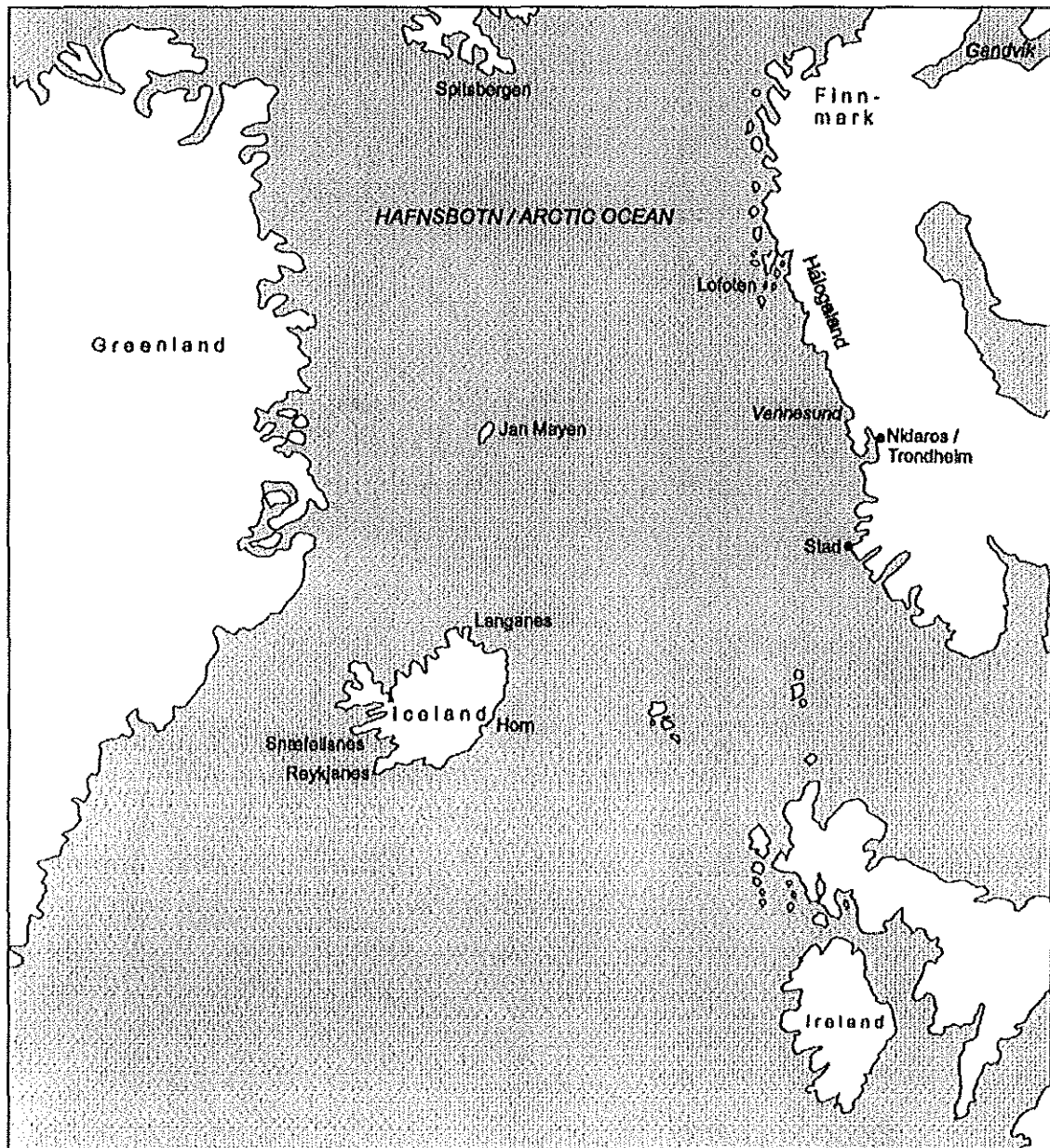


Figure 8: Place-names mentioned in the discussion of Svalbardi.

Nature and climate of Svalbard

Climate and vegetation

Svalbard is situated between $76^{\circ}30'$ and $80^{\circ}30'$. Despite this northern location, the climate is less extreme than in other areas at the same latitude. The warm Atlantic Gulf-Stream tempers the polar cold. This results in Spitsbergen's western coast being clear of ice up into the fjords in summer. Low pressure along the Polar Front frequently moves across the Norwegian Sea into the Barentsz Sea, transporting warm humid air into the area. Because of these two features, the average annual temperature is relatively high, although the weather is often damp and stormy.

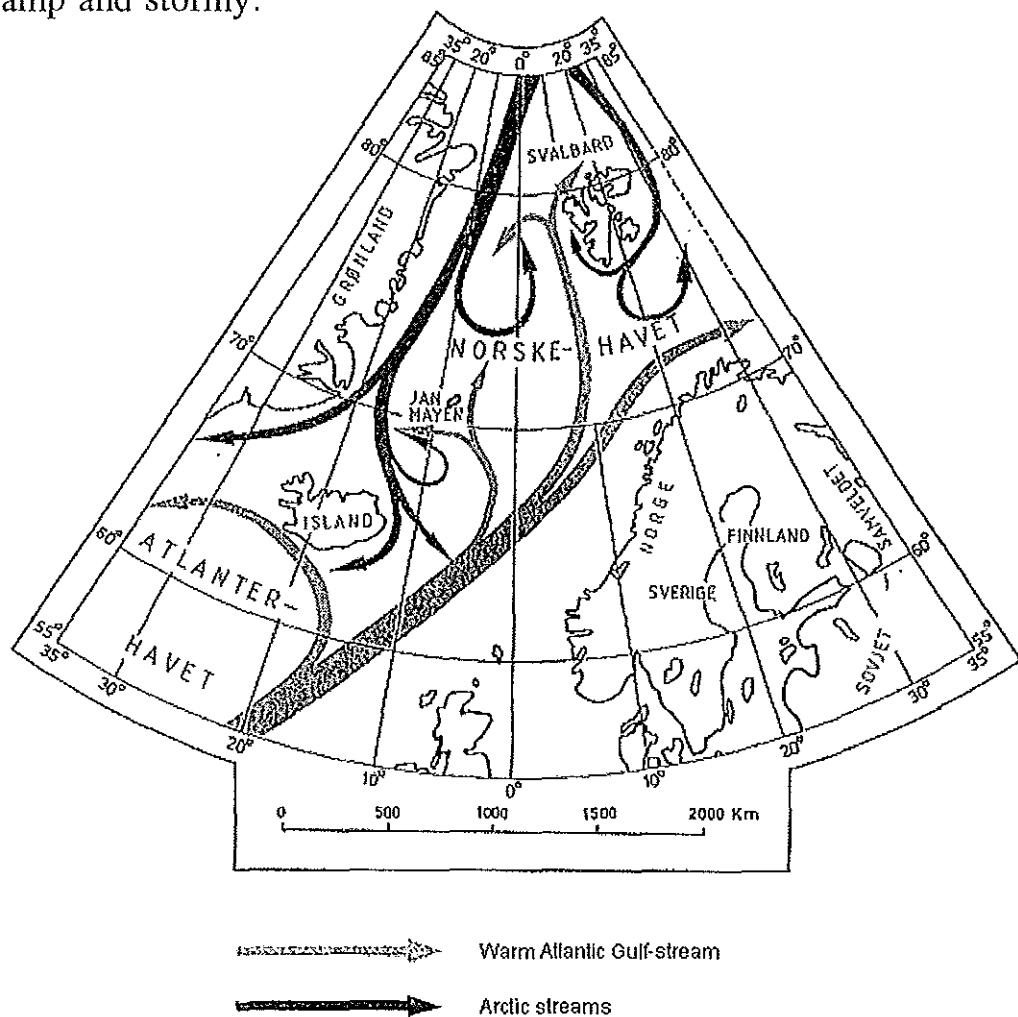


Figure 9: Gulf Streams near Svalbard.

The mean values for the coldest months lie between -12° and -20° C, and for the warmest month between 0° and 10° C.

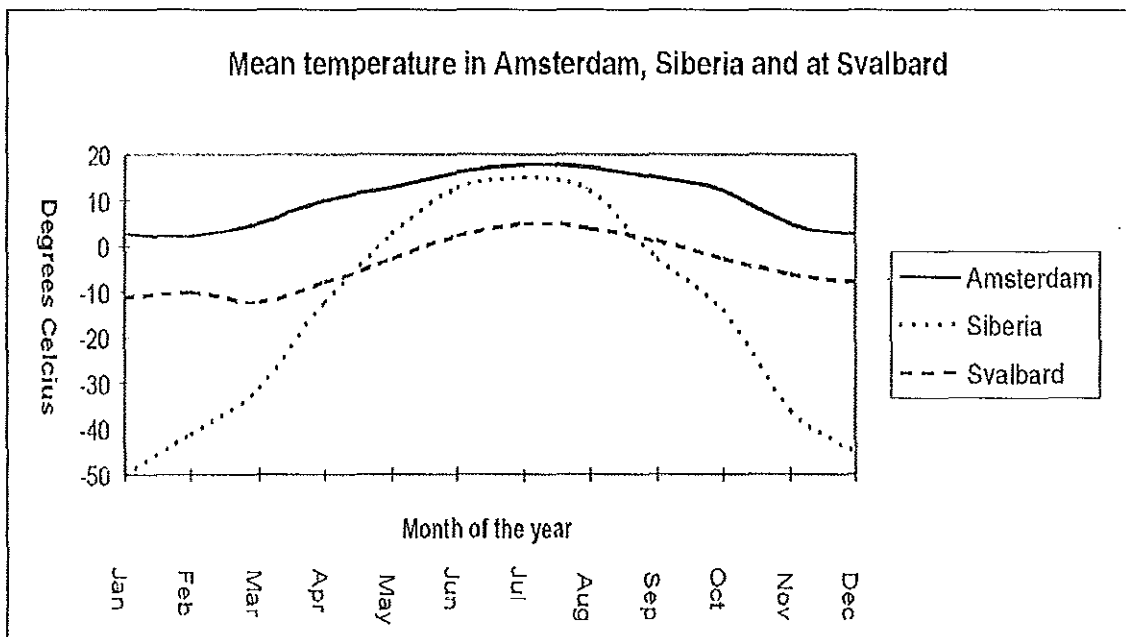


Figure 10. Average temperatures of Amsterdam, Siberia and Svalbard.

Because of the relatively favourable climate, Svalbard's vegetation is more varied than that of other areas at corresponding latitudes. The journal of Gerrit de Veer tells us that the discoverers of Spitsbergen also noticed this:

It is here also to be noted, that although that in this land, which we esteem to be Greene-land, lying vnder 80 degrees and more, there groweth leaues and grasse, and that there are such beast therein as eat grasse, as harts, buckes, and such like beastes as liue thereon; yet in Noua Zembla, under 76 degrees, there groweth neither leaues nor grasse, nor any beastes that eate grasse.

The vegetation of Svalbard consists mainly of mosses and lichens. Because of the cold climate, the only tree-like plants are the polar willow (*Salix polaris*) and the dwarf birch (*Betula nana*). The climatically most favoured spots produce about 125 different flowering plants, most of them are grasses (*Gramineae*). The plants are low-growing to

protect themselves against weather and wind. In the vicinity of the bird cliffs near the sea, where many birds brood their eggs, the plants grow taller. The dung of the birds fertilizes the ground. Here one finds scurvy grass (*Cochlearia officinalis*), which contains high amounts of vitamin C.

Animal life

Birds

In summer, migratory birds such as geese, ducks, various kinds of gulls, auks, guillemots, fulmars and sandpipers visit Svalbard. They brood their eggs and moult all along the coast. Barentsz and his crew were surprised to discover that the brent goose (*Branta bernicla*), a common wintering bird in Holland, bred on Spitsbergen.

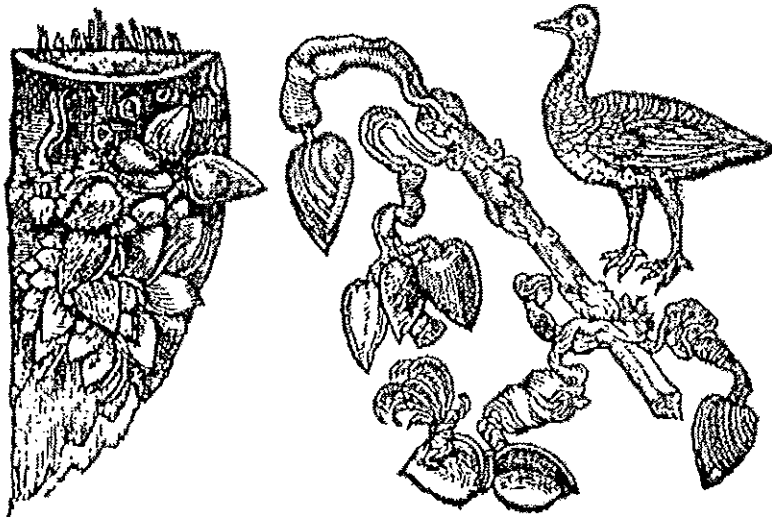
Those geese were of a perfit red colour, such as come into Holland about Weiringen, and euery yeere are there taken in abundance, but till this time it was neuer knowne where they hatcht their egges; so that some men haue taken vpon them to write that they sit vpon trees in Scotland, that hang ouer the water, and such egges as fall from them downe into the water become young geese and swimme there out of the water; but those that fall vpon the land burst in sunnder and are lost; but this is now found to be contrary, and it is not to bee wondered at that no man could tell where they breed their egges, for that no man that euer we knew had euer beene under 80 degrees, nor that land under 80 degrees was neuer set downe in any card, much lesse the red geese that breed therein (Gerrit de Veer) (fig. 11).

Land mammals

Svalbard has only two indigenous land mammals: the Arctic fox (*Alopex lagopus*) and the reindeer (*Rangifer tarandus*). The Arctic fox is found in all parts of Svalbard, but the areas beneath bird cliffs are his favourite, because both eggs and young fall down. The Arctic fox also follows the polar bear to search for food scraps. There are two varieties of Arctic fox: the more common white fox with its white winter coat, and the blue fox which keeps its blue-grey colour during

the year. The Svalbard reindeer is smaller and more compactly built than its relative in Scandinavia. It is a miracle that the reindeer survives in the harsh conditions of Svalbard. It has to build up an energy store in the form of fat during the short summer, to be able to stay alive in the severe polar winter. In summer, the reindeer migrate to the coastal plains to eat the abundant plants.

Britannica Conchaevalifera.
The breed of Barnacles.



1. The barnacle tree,
from Gerard's 'Herbal'.

Figure 11: Brent goose on a tree.

Sea mammals

One of the most impressive sea mammals is the polar bear (*Ursus maritimus*). The polar bear lives on the sea-ice, where it hunts its prey, seals. Throughout late winter and spring, as long as the ice lies between the islands, the polar bear is not frequently seen on land. The small ringed-seal (*Phoca hispida*) is the most common seal species in Svalbard. It lives on the sea-ice and dives for fish and plankton. The dark spots on the skin, surrounded by lighter rings, are the origin of the name. The bearded seal (*Erignathus barbatus*), which is taller than the ringed-seal, is also common. The walrus (*Odobenus*) is only seen occasionally, due to merciless hunting. The walrus is a social animal

that lives in groups. Nowadays, their numbers are increasing again on Svalbard.

Whales are warm-blooded mammals which are adapted to living in the sea. A thick layer of blubber protects the animals against the often cold seawater. Because the whale has lungs instead of gills, it is forced to breathe at the water surface. The nostrils are found at the top of the head. When the whale turns up, it thrusts out an enormous amount of moist air: the famous "blow".

The whale family can be divided into two sub-families: the baleen whales and the toothed whales. The toothed whales eat fish and octopus, which are caught one by one, and have a good developed set of cone-shaped teeth. Baleen whales have 200-300 elastic, horn plates (baleens or beards) hanging on each side of the upper jaw of their mouth. With these baleens, they can sieve large amounts of plankton out of the sea.

In the 16th century, thousands of Greenland Right whales (*Balaena mysticetus*) existed in the waters of Svalbard. These large baleen whales have an average length of 15 to 20 metres. Their average weight varies from 50 to 100 tons. The nostrils of the Greenland Right whale are explicitly separated, which results in a double "blow". The animal has a black colour, with a white spot on the chin and a light-grey spot near the tail. The enormous head makes up about one-third of the body length. Because of their arched upper jaw they are also called Bowheads.

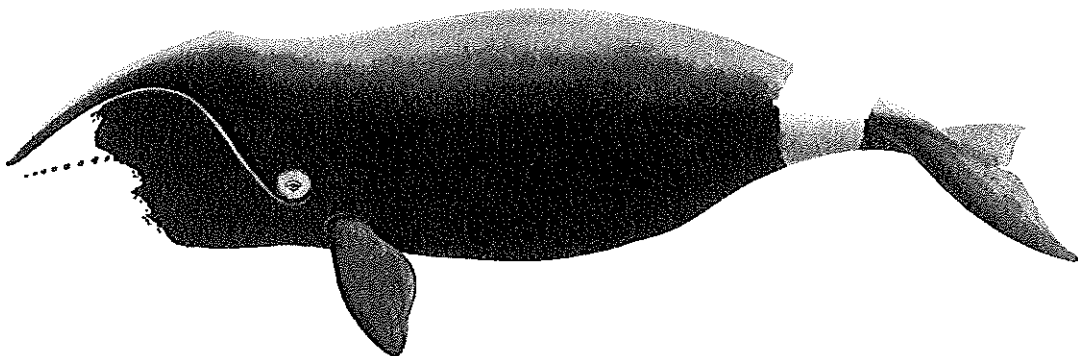


Figure 12: The Greenland Right whale.

Near Svalbard, warm Atlantic water and cold Arctic water flow together. In these so-called convergence zones, the abundance of nutrients and an appropriate temperature of the water form favourable circumstances for the growth of plankton. Phyto-plankton needs sunlight to grow. In spring, the sun returns and the sea-ice melts. The light causes an explosive growth of phyto-plankton. This results in an explosive growth of zoo-plankton, which feeds on phyto-plankton (fig. 13). The Greenland whale follows the melting of the sea-ice in order to find its food, zoo-plankton.

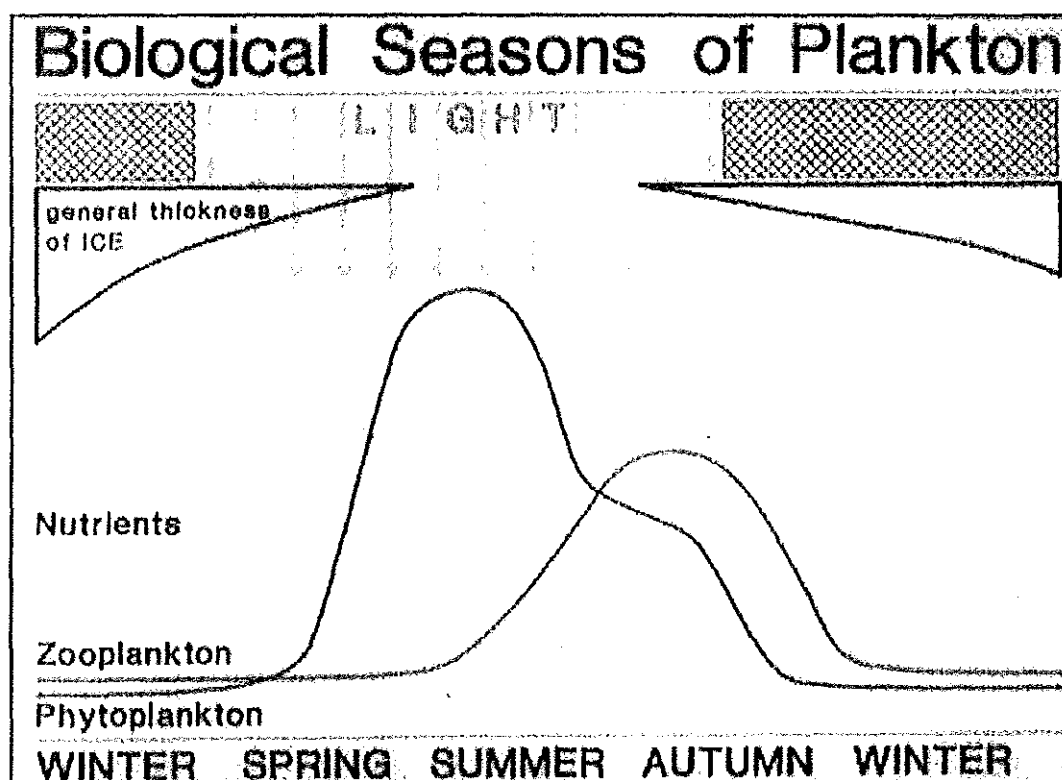


Figure 13: Seasonality of plankton

During the majority of the year, the Greenland whale lives alone or in small groups. The whales only concentrate during two periods in the year: in spring, when they give birth to their calves near Jan Mayen Island, and in summer, when they mate and feed near Svalbard. These concentrations of whales were favourable for the whale-fishery.

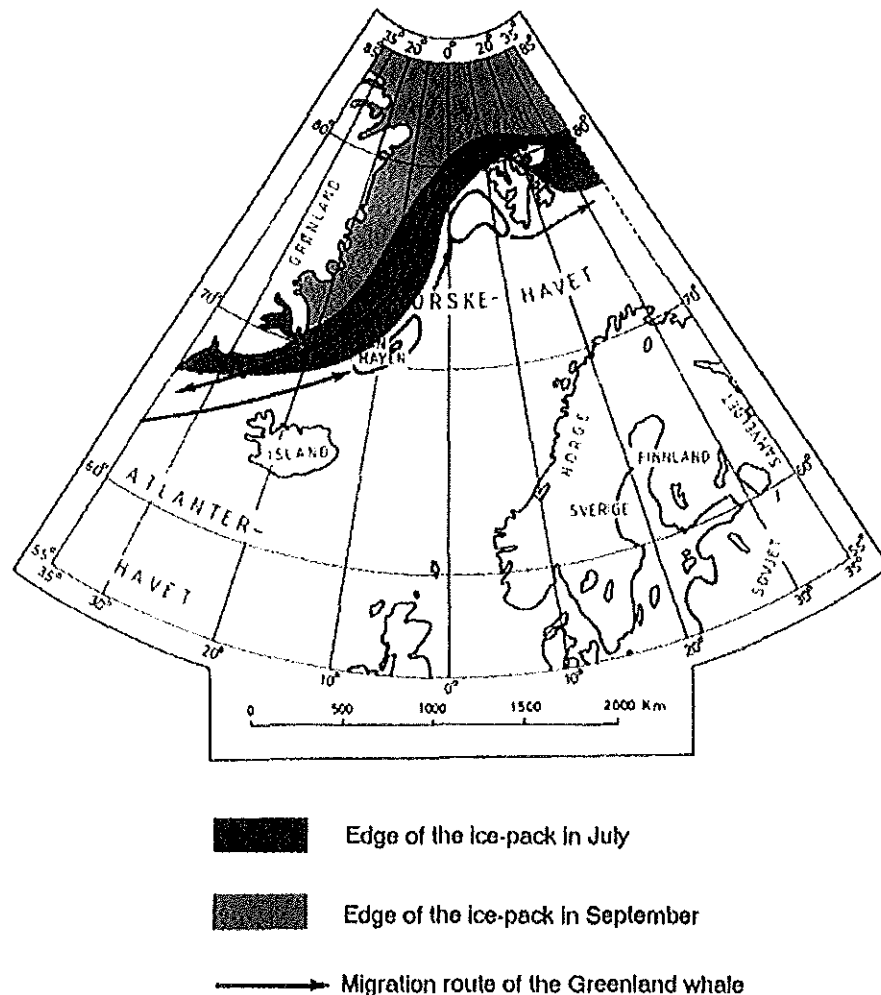


Figure 14: The migration route of the Greenland whale.

Greenland whales are very slow swimmers, which makes them easy to catch. That is why they are also known as right whales, as they were the "right" whales to kill. After the whale died it remained floated because of the enormous amount of blubber, which was convenient for the hunters.

Today, only the white beluga whale (*Delphinapterus*) is seen in the Spitsbergen waters. The Greenland whale, once numerous around Spitsbergen, became almost extinct because of the whaling fishery in the 17th and 18th century. A small number of them can still be found around Franz Joseph Land.

Whaling in the waters of Spitsbergen

Rise of the whale-fishery

In the first decade of the 17th century, the demand for oil and fats in Western Europe grew because of the fast growing population and expanding industries. Until that point, oil and fats were extracted from rapeseed, linseed and hempseed. Due to high grain-prices, the production of oil-bearing seeds declined. It became worthwhile to use animal fat and oil as a substitute for vegetable-oil. The English and Dutch sent out ships to Bear Island and Novaya Zemlya to catch seals and walruses. Their blubber was boiled to train-oil. Train-oil was also bought in the northern parts of Norway and Russia, and was used in products as candles, lamp-oil, lubricants and soap.

In 1607, the waters of Spitsbergen were visited by the English explorer Hudson. He was the first person who paid attention to the enormous riches of whales, walruses and seals in the bays of Spitsbergen. As the English were interested in the possibilities of seal and walrus hunting near Spitsbergen, a ship was sent there in 1610. The commander Jonas Poole reported *a great store of whales* in the waters of Spitsbergen. Later, Poole wrote: *the whales lay so thicke about the ship that some ran against our cables, some against the ship, and some against the rudder. One lay under our beake-head and slept there a long while...* The English Muscovy Company started whaling near Spitsbergen in 1611. By hiring Basques, they learned the techniques of whale-catching. The Basques were experienced whalers, as they had already hunted whales in the Gulf of Biscay for centuries.

In 1612 the first Dutch ships sailed to Spitsbergen to catch whales. The Dutch had no knowledge of whaling. They hired an English pilot to help them with the navigation and hunting. Unfortunately, the knew hardly anything about Spitsbergen or whaling, and he was drunk almost every day. The next year, two Dutch ships sailed to Spitsbergen. This time, the Dutch also hired Basques to learn the ins and outs of the whale-fishery.

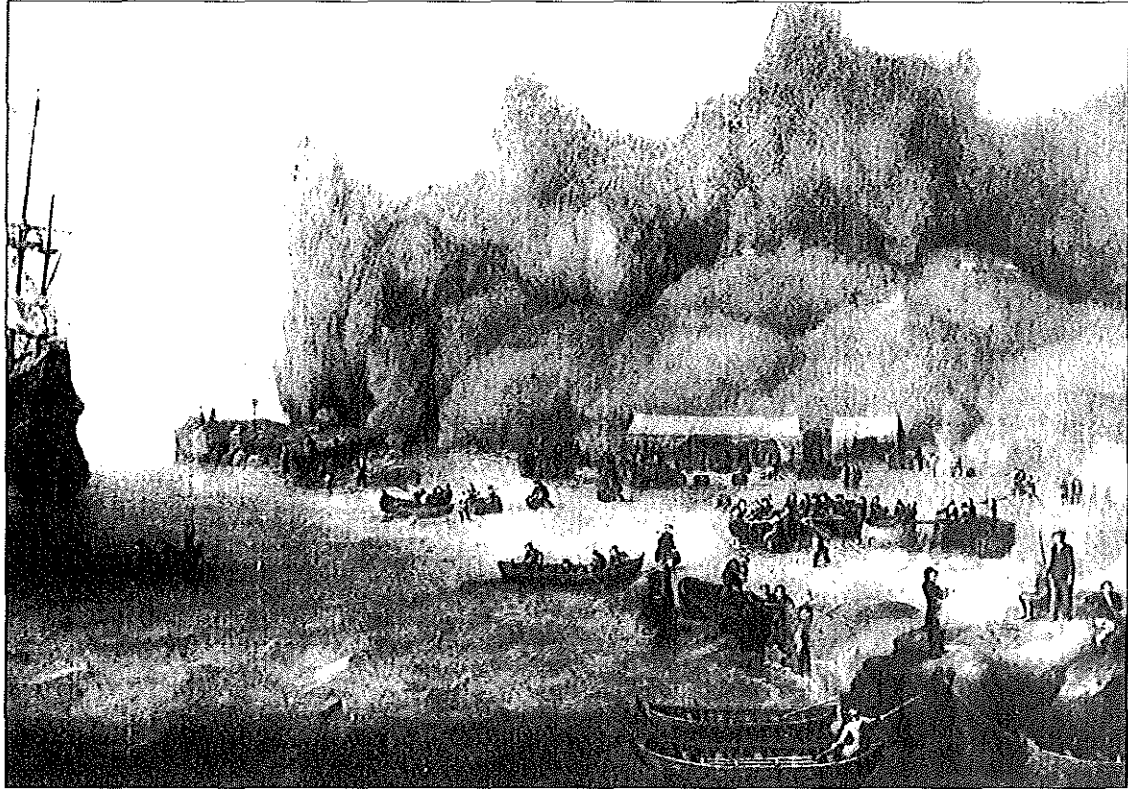


Figure 15: Whaling.

More and more countries and merchants became interested in the whale-fishery. In the summer of 1613 the waters of Spitsbergen were visited by 28 ships. The English Muscovy Company tried to monopolize the whale-hunting, as they had started it. In the summer of 1613 they forced three Dutch ships to surrender their catch to the English.

In a reaction to the English hostilities, the Dutch whalers established the Noordse Compagnie (Northern Company). The Noordse Compagnie existed of independent enterprises or "chambers" from several Dutch sea ports. It received a charter of the States General. Every year, prices and quota were determined. The aim of the Compagnie was to protect the Dutch whaling against inland and foreign competition. After five years of hostility with England, a division of hunting grounds was agreed. The Noordse Compagnie had patent on the Dutch whale-fishery until 1642.

The Dutch whaling concentrated mainly on two locations: in the Mauritius bay in the northwest of Spitsbergen and on Jan Mayen, an island which was discovered in 1614. The blubber was boiled into train-oil in whaling settlements on Amsterdamøya and Jan Mayen.

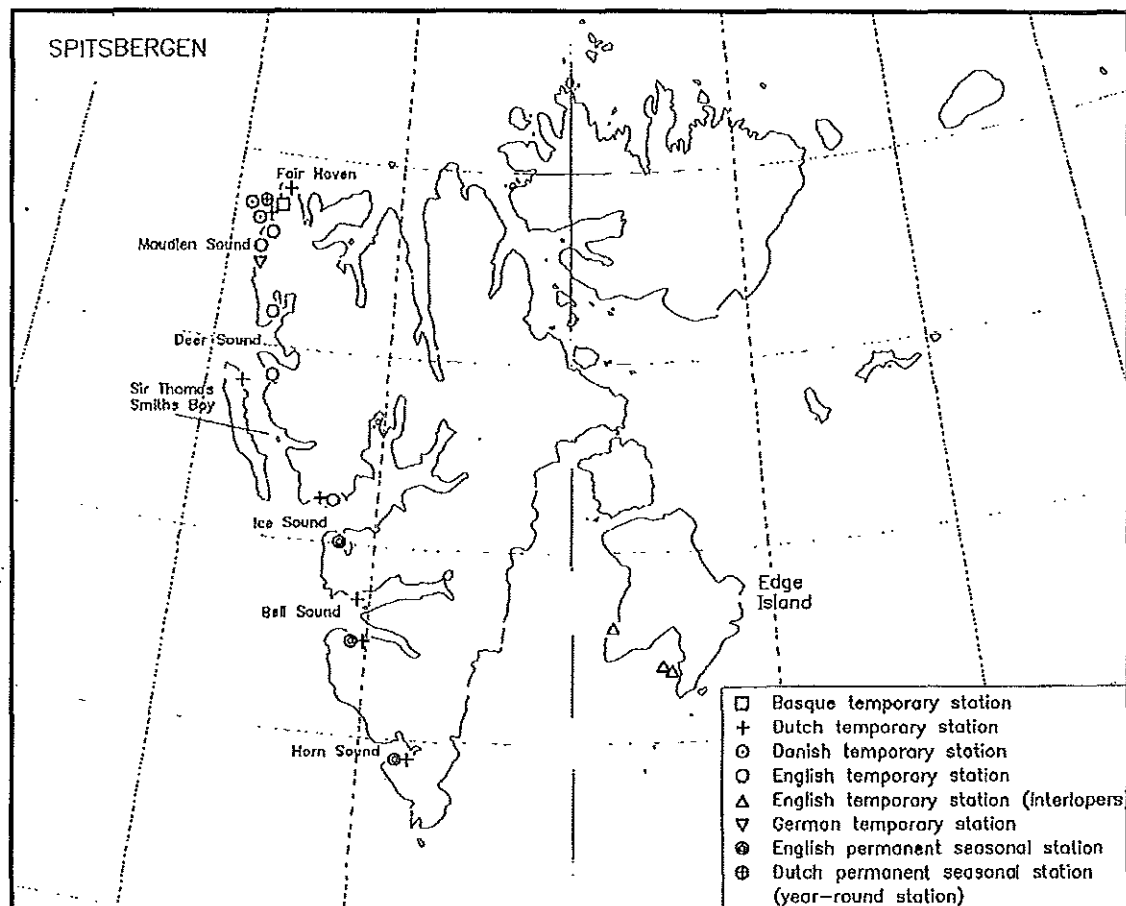


Figure 16: The hunting grounds and whaling stations of the countries concerned in whaling.

Apart from Holland and England, other countries also started whaling in the waters of Spitsbergen. Denmark-Norway began their whale-fishery in 1619 and they had a try-work at Amsterdam Island until 1624. In 1631 the Danish built a temporary try-work at Danish island, which they used for two only years. Because of their experience, the Basques were feared by both the Dutch and the English. The Basques were not allowed to establish a whaling station at Spitsbergen. As a

reaction to this, they plundered whaling ships and land stations. Their whale-fishery concentrated on the open sea, where they stripped the whale alongside the ship.

Whaling techniques

The Dutch whale-fishery used merchant-ships, the so called "fluit". This practical and cheap ship was commonly used in the 17th and 18th centuries. Usually, about 40 seamen were on board each ship. Besides their normal seamen's tasks, they also had to take care of the whale hunting. The work on the land based stations was done by the land crew. For a try-work with three copper boilers, 55 men were needed.

On each side of the whaling ship, near the after-deck, two sloops were hung. These whaling-sloops had a sharp stem and stern. A sloop was about 20 feet long and was manned by six persons.

At the beginning of May the whaling ships sailed out from their bases in Europe. Early in the year, the ships were filled with provisions and catchment gears. It took about three weeks to travel to the whaling area. The ships arrived at Spitsbergen at the end of May. During the summer, the whaling took place. The whalers lived in temporary settlements while the ships lay at anchor in the bays.

As soon as the look-out, who was located at mountains on the islands or in the crow's nest of a ship, caught sight of a whale, the whaling began. He warned the sloops and the four oarsmen rowed the sloop quietly to the whale. The steersman in the back of the boat tried to keep it on course. When the whale was within range, the harpooner who stood in the front of the sloop, threw the harpoon. As soon as the whale was hit, it dived under water. Therefore, a long rope was fastened on the harpoon, to ensure that the sloop stayed in the vicinity of the whale, without being dragged along into the depths of the sea. The linekeeper unrolled the rope. When the whale was out of breath, it came to the surface and could be harpooned again. Eventually, after fighting for hours, the whale surrendered and was stabbed to death with

lances. Because blood enters the lungs, the last "blow" was orange coloured. In the beginning of the whale-fishery, the steersman, harpooner and linekeeper all were Basques. During the years, the whalers of the different countries learned the skill of whale-catching and the Basques could be replaced by their own people. The linekeeper was the first man to be replaced, then the steersman and finally the harpooner. In 1669 the last Basque harpooner disappeared from the Dutch whaling fleet.

The harpooning of a whale was a dangerous and precarious job. The sloop had to be rowed near the whale in order to be able to hit it. However, if the boat came too close, it could be thrown upside down by the tidal wave which the whale caused by diving, or be hit by its tail.

Very soon after the rise of the whale-fishery near Spitsbergen, the whalers started to boil the blubber to train-oil in the catchment area. Several whaling stations with try works were established on the coasts of Spitsbergen. Initially, the floating corps of a dead whale was tied up on the sloops, and rowed to the ships. Alongside the ships, the blubber was cut from the whale, which is known as flensing. Later it was rowed to the beach by a couple of sloops. At high tide the animal was pulled on to the beach with the help of a capstan. The whalers then flensed and stripped the whale. The big parts of blubber were cut into small pieces before it was boiled to train-oil. Finally, the train-oil was packed into barrels and brought to the ships.

A try-work consisted of three units, namely:

- the outer circle of stone and cement, which formed the foundation of the floor and protected the furnace against high water;
- the furnace proper, which was made of brick. A flue ensured that the heat of the fire, lit in front of the copper, was carried through underneath it;
- the copper boiler, which was cemented into place and stood on a foundation of sand, boulder clay and brick.

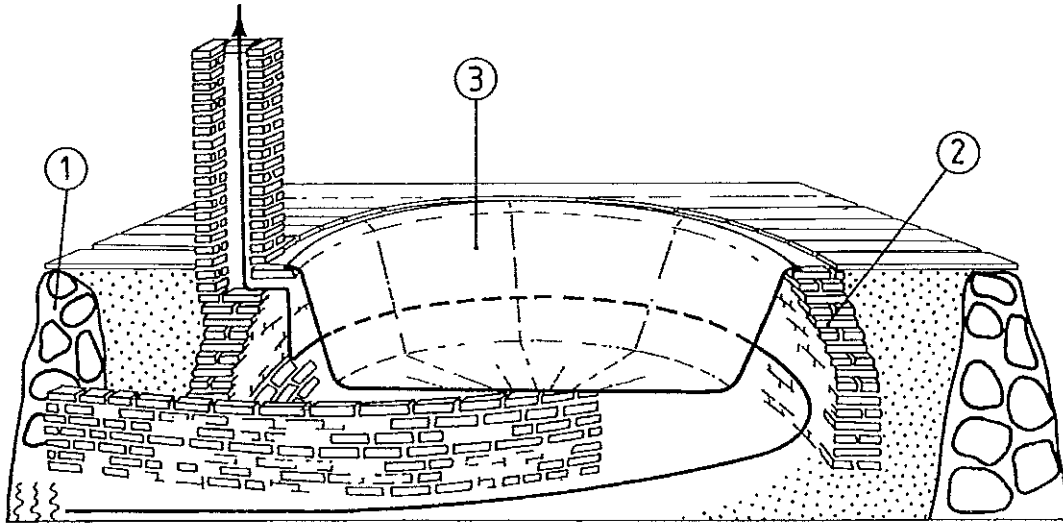


Figure 17: A try-work.

The fire was fed with wood, peat and coal brought from Europe. Whale remains and local drift-wood were also used as fuel. The train-oil, which melted down from the blubber, was ladled into large tanks where it was filtered and could cool down.

Changing whale-fishery

During the "little ice-age", which lasted from about 1450 till 1850, several colder and warmer periods occurred. In the beginning of the 1640s, a severe cold period started. The edge of the ice-pack moved slowly southward and the fjords of Spitsbergen were covered with ice much longer than usual. In the 1650s, the whalers could only reach their land based try-works every once in a while. The Greenland whale disappeared from the bays of Spitsbergen and concentrated near the edge of the ice-pack in the open sea. The whalers were forced to follow their prey and change their whaling activities from bay fishing into ice fishing. The dead whales were flensed alongside the ship again, and the blubber was cooked in Europe. The tryworks of Spitsbergen were no longer functional and the whaling stations fell into decline.

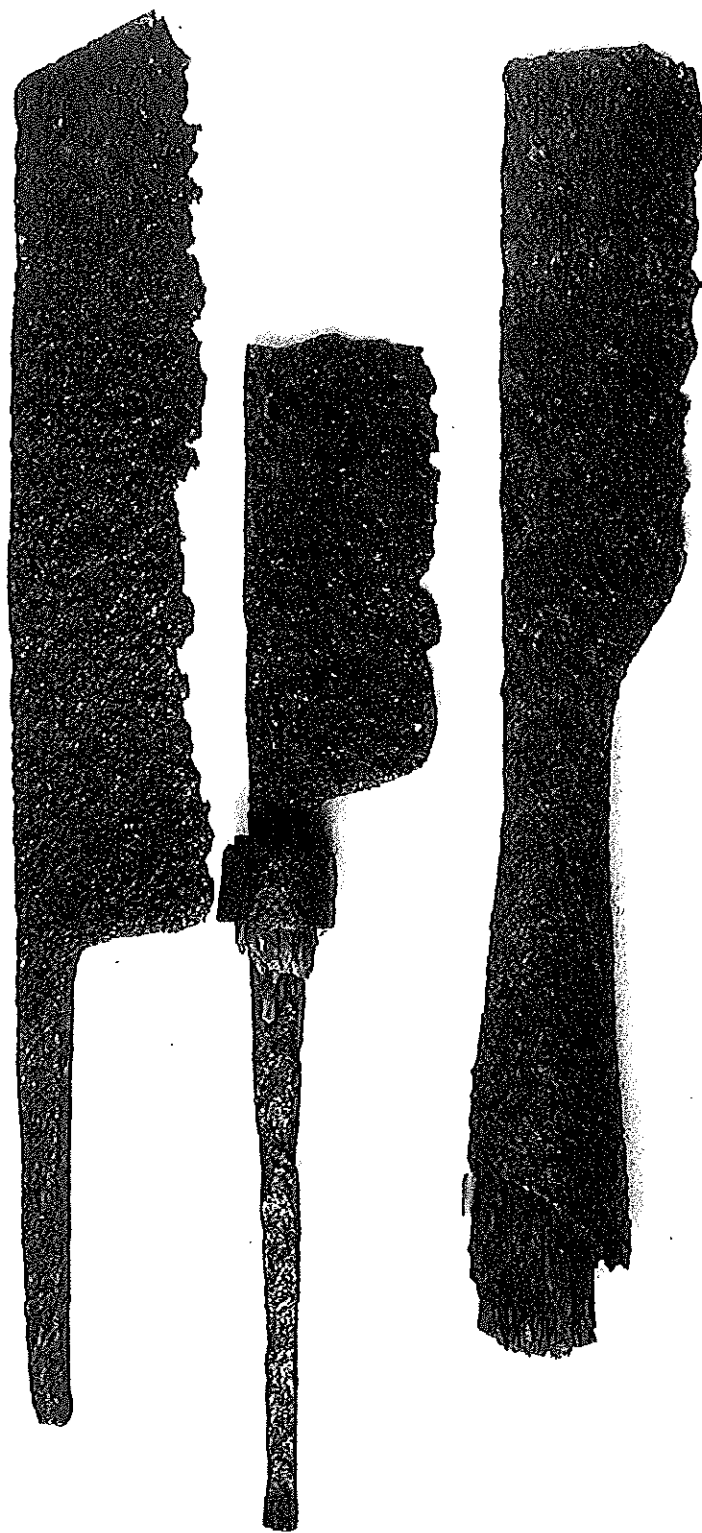


Figure 18: Flensing knives.

The whale-fishery in the waters of Spitsbergen lasted until about 1800, by which time the whales were almost extinct and whaling was no longer prosperous.

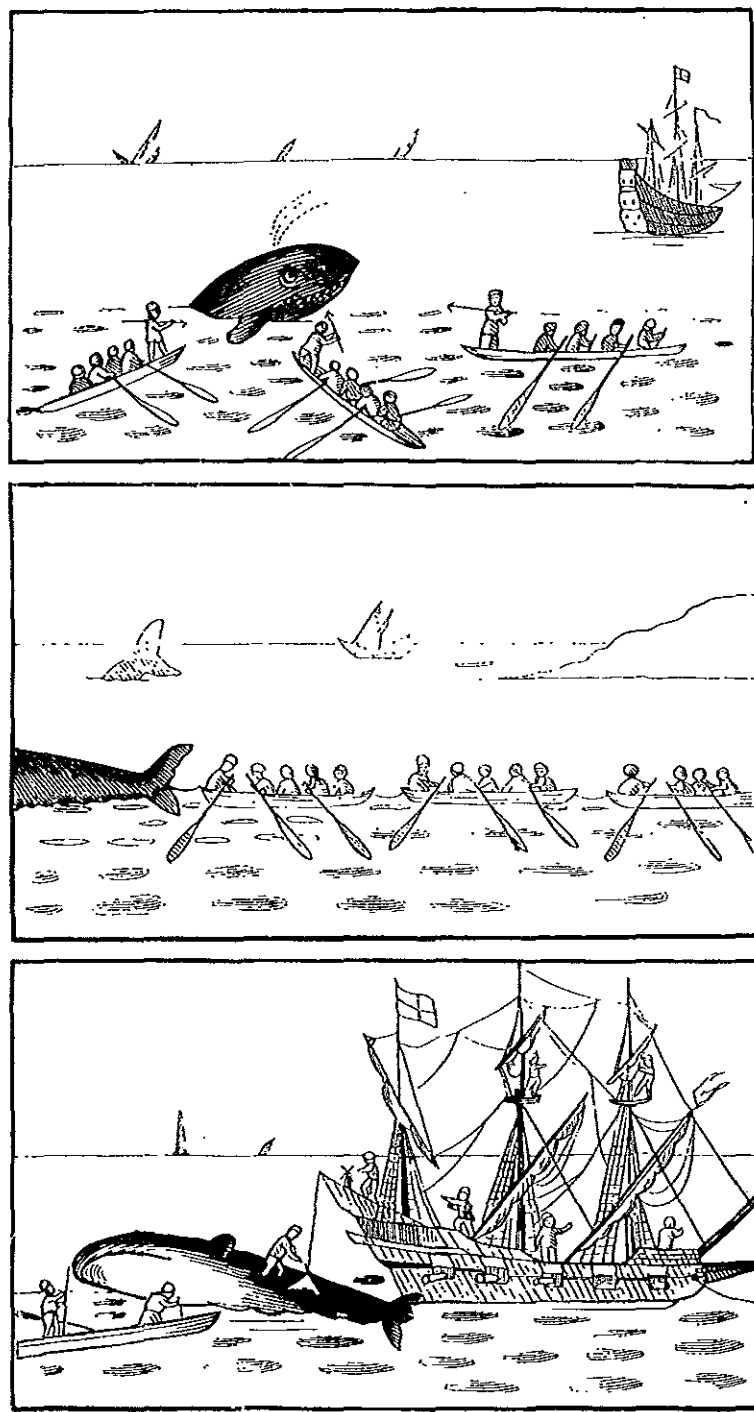


Figure 19: Ice-fishery.

Smeerenburg: a seasonal settlement on the coast

The development of Smeerenburg

Smeerenburg ("Blubber town") was a Dutch whaling station located at Amsterdamøya in the northwest of Spitsbergen (fig. 20). It was in use from around 1620 until 1660. The whales were caught in the Mauritiusbay, as the Smeerenburg fjord was formerly called, and were transported to the settlement. There, the whales were flensed and the blubber was boiled into train-oil.

Smeerenburg was the subject of fabulous stories. Ever since its decline, whalers and writers have romanticized the whaling station. Smeerenburg was thought to have been a town with warehouses, shops, bakers and peddlers. During the summer, life at Smeerenburg was as active as a Dutch fair. There was a church and a fort, and even bars and a brothel were assumed to have been there. It was also thought that the summer population at some point numbered up to 30,000 inhabitants.

Between 1979 and 1981 the Arctic Center of the University of Groningen investigated the Dutch whaling station of Smeerenburg. This archaeological research provided a realistic view on the living- and working conditions of Smeerenburg.

The development of Smeerenburg started in about 1620. Initially, the whalers lived in tents, made of oars and sailcloth. The try-works were small and round, only capable of heating one copper boiler. Later, the accommodation became more comfortable. Wooden houses were built, and eventually the houses were even partly made of bricks. The floors were solidly founded and the streets were paved. In order to get rid of the rain and melting water, drain-pipes were constructed.

In the high-days of the settlement, 8 double ovens were in use. About 16 houses were built for the craftsmen, the blubber-cutters and the boilers. A small fort with cannons protected the whalers against competitors.

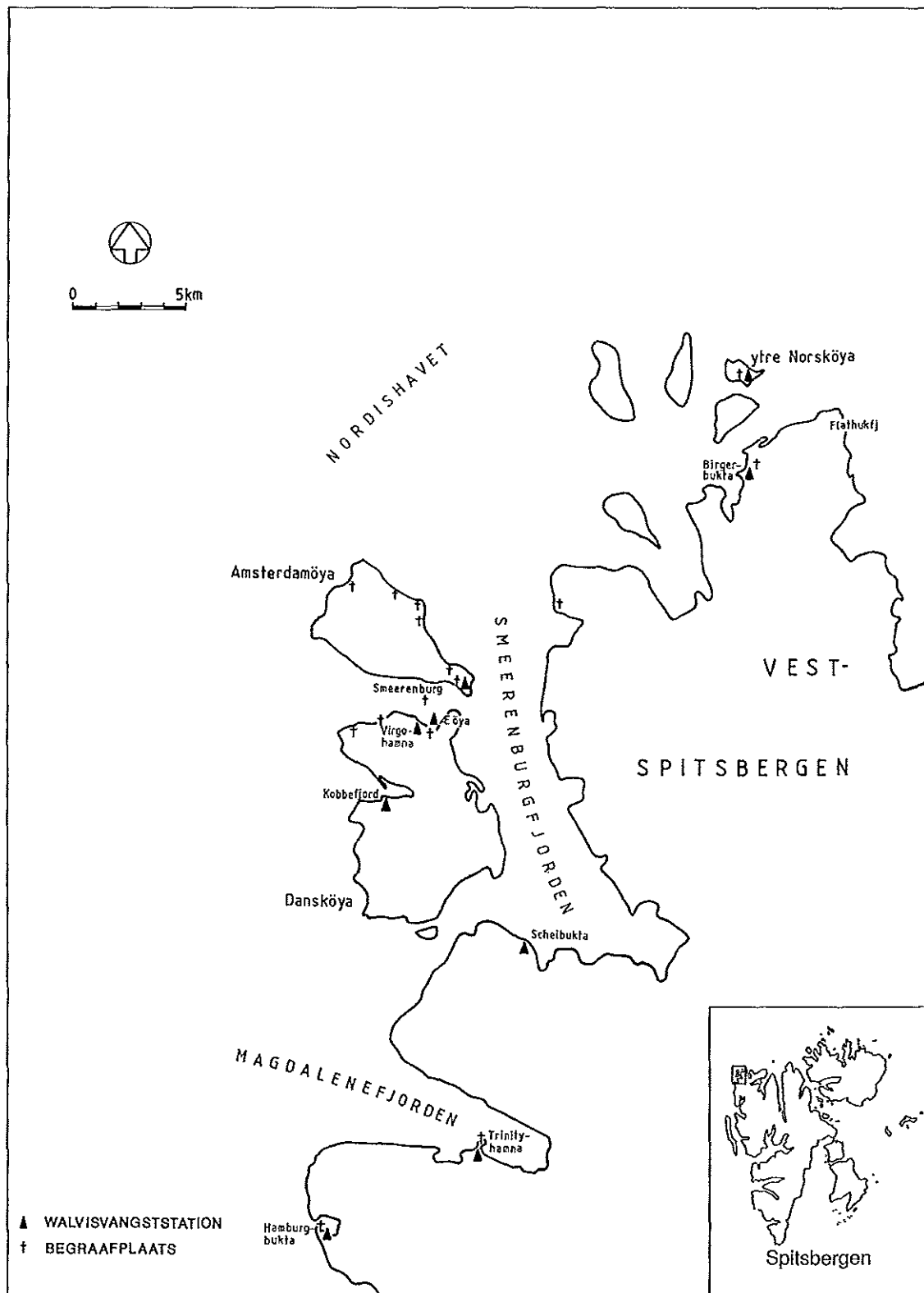


Figure 20: The location of Smeerenburg.



Figure 21: The painting of a Dutch whaling station in the Northern Ice Seas, made by Cornelis de Man, gives an example of how Smeeren-burg might have looked like.

In total, about 200 people lived and worked at Smeerenburg during the summer season. In winter, the settlement was completely abandoned.



Figure 22: An excavation of a Smeerenburg house.

Food and spare-time

In the harsh Arctic climate, the whalers could hardly stay healthy. Most of their food was brought from the Netherlands. It was low on vitamins and had no variation. The food consisted of peas, beans, salted meat and fish, cheese, butter, hard bread, prunes and raisins. Lots of mustard was used to give the food more flavour. In order to obtain some vitamins, the menu was enriched with local food such as fish, birds and reindeer-meat. The whalers also gathered scurvy grass or "salaet" (salad). This contained much vitamin C, preventing the feared disease scurvy.

The whalers drank considerable amounts of wine and beer, probably because the drinking water on board the ships was often polluted. Daily

rations of pipe-tobacco, wine and beer filled up the spare time of the whalers, and they also played several games. Because the whalers were not familiar with baleen, they did not know what to use it for. They experimented with the material by carving and cutting it. Only in the 1650s, when fashion changed and slim women were considered attractive, were baleens used for making corsets and umbrella's.

Death in the Arctic

Many whalers died in the whaling areas. They were buried on the coasts of Spitsbergen. In order to get more information about the whalers, 50 of the most endangered graves were excavated and the human skeletons examined in a laboratory.



Figure 23: The grave of a whaler.

All of the dead whalers appeared to have been male. On average, they were 42 years old. Most of the whalers who died on Spitsbergen were relatively young or old. The main causes of death were scurvy and accidents.

A remarkable phenomenon was found present in 40 of the 50 men. They had a channel worn out in their teeth. This is caused by the smoking of pipes, which were held in the mouth for very long periods. This tells that the whalers were passionate smokers.

Clothing

In both the whaling station at Smeerenburg and in the graves, many items of clothing were found. They were very well conserved because of the favourable climatic conditions, and now form one of the largest existing collections of 17th and 18th century workman's clothing. The clothes of the whalers hardly differed from the garments worn in the same period in the whole of north-west Europe. On the upper body they wore several shirts, with a short woollen jacket on top. The shirts and jacket had openings under the arm-pit, in order to maintain freedom of movement while wearing them over each other.



Figure 24: A woollen jacket.

The lower part of the body was covered with knee-length stockings and a pair of wide working trousers. The whalers wore low, leather shoes. The woollen clothing did offer some protection against the cold, but it was not specially adapted to the Arctic climate. The whalers just wore their winter-clothing. It surely did not offer protection against the moist air of Spitsbergen.

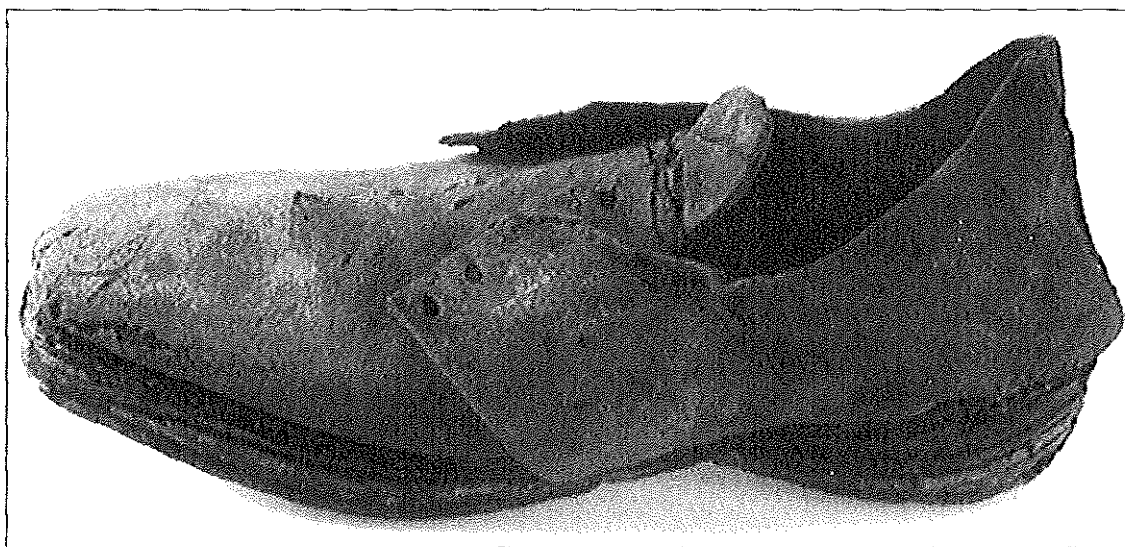


Figure 25: A shoe of a whaler.

Findings of half hats and several felt cuttings show that felt hats were not suitable for working on the windy spit of land on Amsterdamøya. Instead, the felt served its turn as inlay in shoes to keep the feet dry and warm. On the head the whalers wore their own knitted caps. Every cap was different, as if each whaler derived his identity from the cap he was wearing.

Wintering in Smeerenburg

In 1630, 8 English whalers were accidentally left on Spitsbergen. They were in good health when the whaling ships returned in 1631. When the Basques plundered some Dutch storage houses on Jan Mayen in

1632, the Noordse Compagnie decided to leave a group of volunteers in the whaling stations to winter. Keeping in mind the survival of the English winterers without special preparations, it was thought possible to turn the whaling stations into permanent settlements. The winterers were ordered to examine the weather conditions of the polar winter and to experiment with whaling in the autumn and spring. In the winter 1633-1634 two groups of volunteers stayed in the North, one on Jan Mayen and the other one in Smeerenburg. As the ships returned on Jan Mayen in 1634, they found the group deceased from scurvy and exhaustion. The group on Amsterdamøya had survived remarkably well. They had managed to harvest a lot of scurvy grass, which provided them with the necessary vitamins during the winter. They even hunted polar foxes and reindeer, to have fresh meat for dinner.

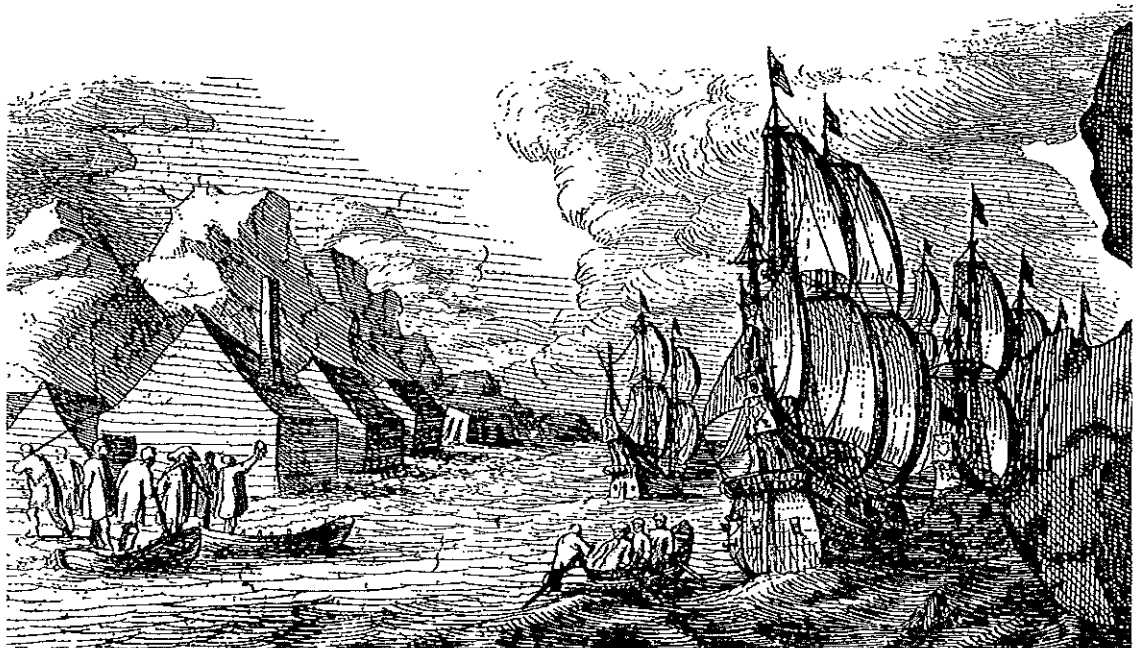


Figure 26: The ships sail for Holland, leaving the winterers behind.

Because of the successful wintering in Smeerenburg, another group was left on Amsterdamøya the next year. This group of seven people was less fortunate, especially because they did not manage to gather scurvy grass. The wintering ended in the death of all volunteers, and after this drama no further attempts were made to stay the polar winter.

JOURNAEL, *Of Dagh-Register / gehouden by Seven* MATROOSEN,

In haer Overwinteren op

Spitsbergen in Maurits-Bay/

Gelegen in Groenlandt, t' zedert het vertreck van de Visschery-
Schepen der Geoctroyeerde Noordtsche Compagnie, in Nederlandt,
zijnde den 30. Augully, 1633. tot de wederkomst der voorlz. Schepen, den
27. May, Anno 1634.

Beschreven door den Bevelhibber

JACOB SEGERSZ. van der BRUGGE



AMSTERDAM, Gedrukt

By GILLIS JOOSTEN SAEGHMAN, in de Nieuwe-Araet/
Ordinaris Drucker van de Journalen der Zee- en Landt-Versien.

Figure 27: Front page of the journal of the winterers.

February 26

Four of us that are still alive, lie flat upon the ground in our huts; we believe we could still feed, were there but one among us that could stir out of his hut to get us some fewel, but nobody is able to stir for pain. We spend our time in constant prayers, to implore God's mercy to deliver us out of this misery, being ready when ever He pleases to call us. We are certainly not in a condition to live thus long without food or fire, and cannot assist one another in our mutual afflictions, but must every one bear our own burthen. (Journal of winterers, 1634-35)

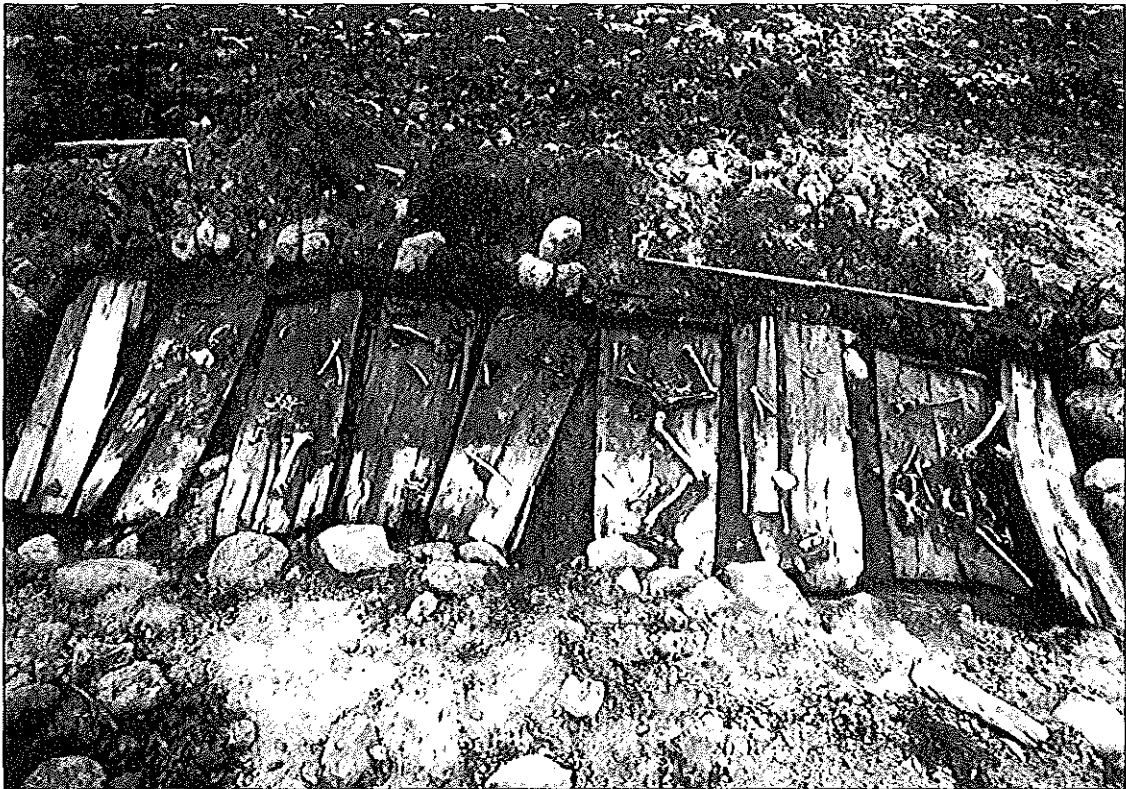


Figure 28: Grave of the seven winterers of 1634-35.

Consequences of the whale-fishery

The completion of the cartography of Spitsbergen

After Willem Barentsz discovered Spitsbergen, more voyages of discovery were made to the North Pole region. All maps of the first whaling period near Spitsbergen are based on information which was collected before 1615. Because of a colder climatic phase, the edge of the ice-pack blocked the exploration of the eastern parts of Spitsbergen. The map of Edge pictures the English discoveries (fig. 30, page 39).

The whalers mostly used manuscripts with drawings of the area, to be able to sail to the whaling stations. In 1651 the first printed local map of Jan Jansz came out.

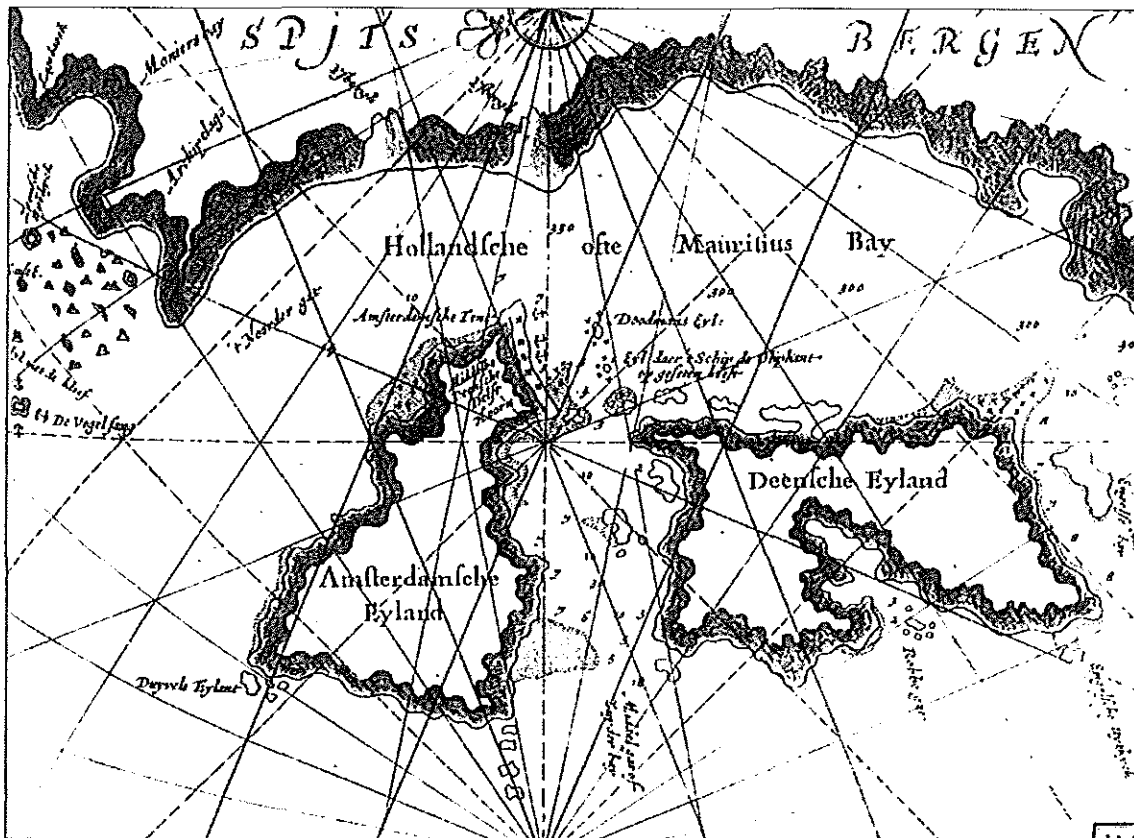


Figure 29: *Hollandsche of Mauritius Bay*, Jan Jansz, 1651.

A warmer climatic phase started around 1625, and the edge of the ice-pack slowly moved up to the north and east. This allowed an exploration of other parts of Spitsbergen. As the Greenland whale follows the edge of the ice-pack, the whaling also moved in a more easterly direction. For the first time, the eastern islands of Spitsbergen were explored. The map of Hendrick Donker (1663) shows the eastern coast of West-Spitsbergen and the whole of Egdeøya.

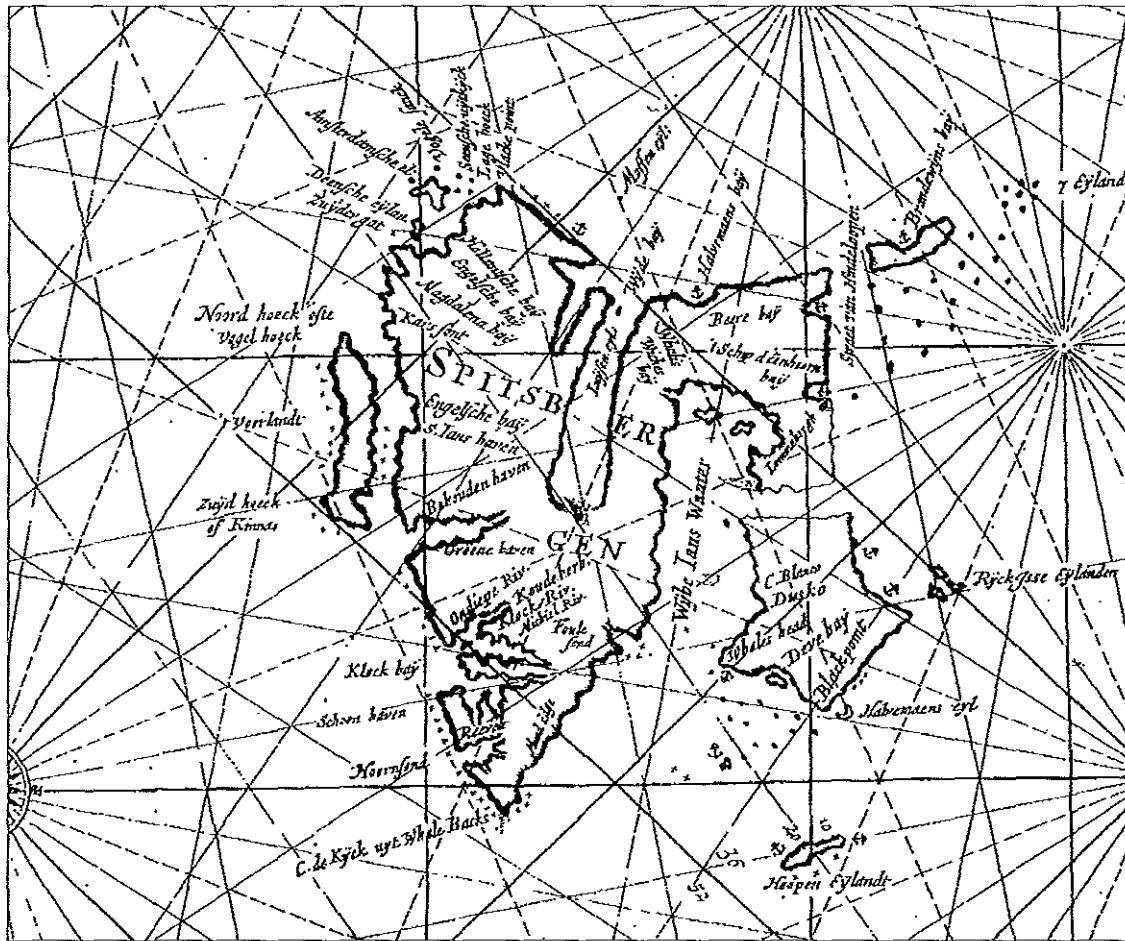


Figure 31: Donker, 1663.

Only at the beginning of the 18th century, due to another warm period, the archipelago of Spitsbergen was circumnavigated for the first time. This resulted in the most detailed old map of the area. The contours of Spitsbergen were broadly outlined.

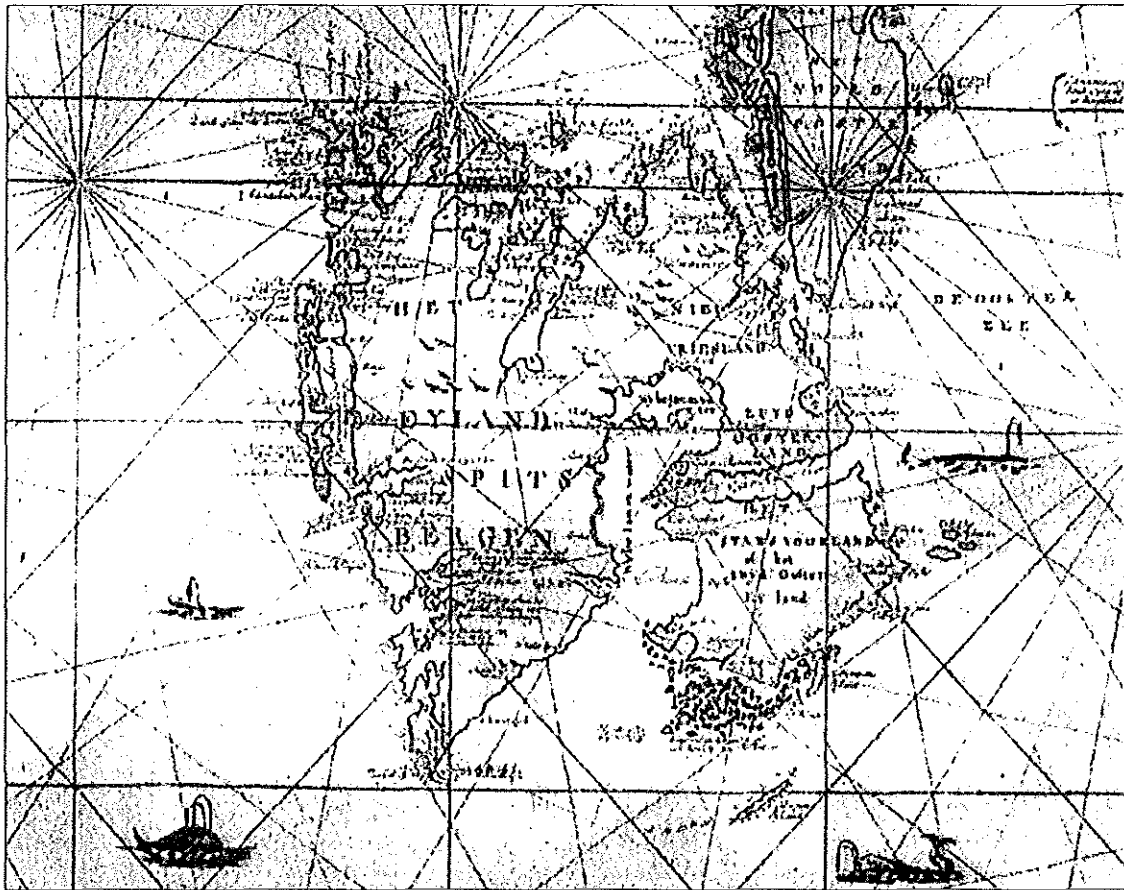


Figure 32: The map of Van Keulen, 1707-1720, used by Cornelis Zorgdrager in his famous on the history of whaling in the Arctic regions.

Effects of whaling on the whale population

In the past, the Greenland whale was found throughout the northern polar waters. Five stocks or populations are recognized to have existed at one time. The Spitsbergen or North-Atlantic population, which lived near Spitsbergen and Jan Mayen, amounted to about 46,260 animals before the hunting period. This population is almost extinct now due to the whaling.

In the first half of the 17th century, the total amount of whales caught in the polar areas was about 300 a year. This meant no serious threat for the survival of the species. The natural growth of the Greenland

whale population could make up these losses. In the 18th century, the whale population became seriously threatened. The Dutch and Germans hunted and killed about 1300 whales a year on average. Whaling continued until about 1800. At that time, there were hardly any Greenland Right whales left. Whaling in the North was, for the time being, no longer profitable.

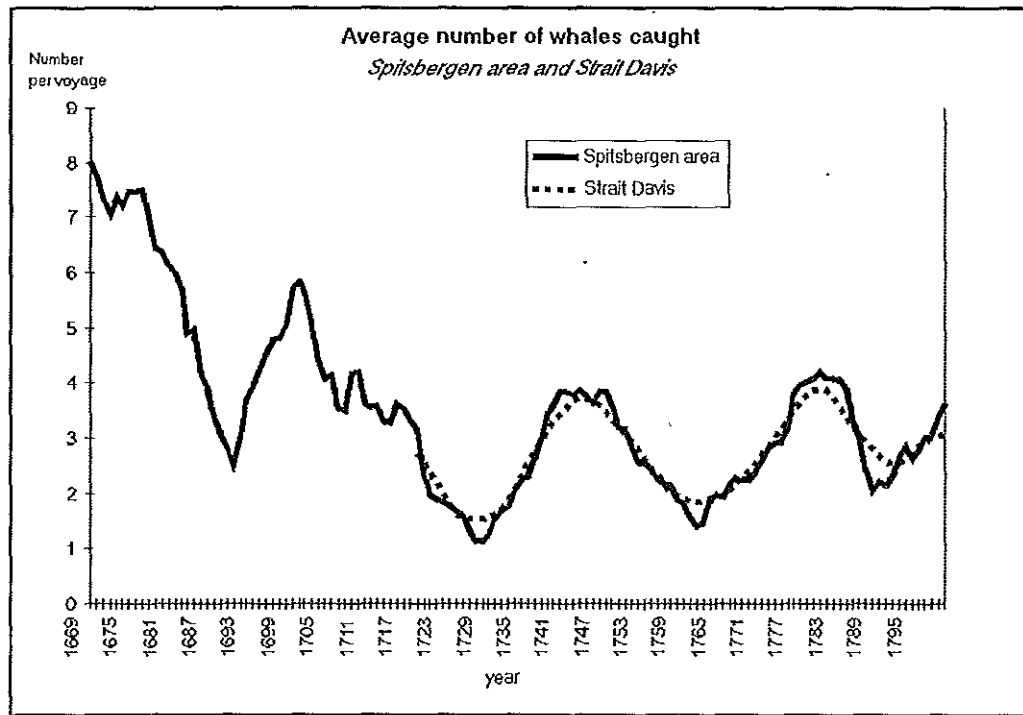


Figure 33: Whaling figures.

Effects of whaling on the ecosystem

The Arctic environment is very vulnerable. It is characterized by an extremely marked seasonal rhythm with long, cold, dark winters and brief but light summers. The low temperatures slow down metabolic processes, which leads to a very slow decomposition. The Arctic flora and fauna are adapted to the unfavourable living conditions, but the ecological balance is very fragile and easy to disturb. Smeerenburg illustrates this vulnerability. The original vegetation at Smeerenburg consisted of mosses. The whalers polluted the soil with waste from the

settlement and from the slaughtered animals. The mosses disappeared and grasses, saxifrage and scurvy grass grew near the settlement. After the decline of Smeerenburg, it took 150 years before the mosses returned. This shows that human activities can cause an enormous disturbance of the natural balance of the Arctic.

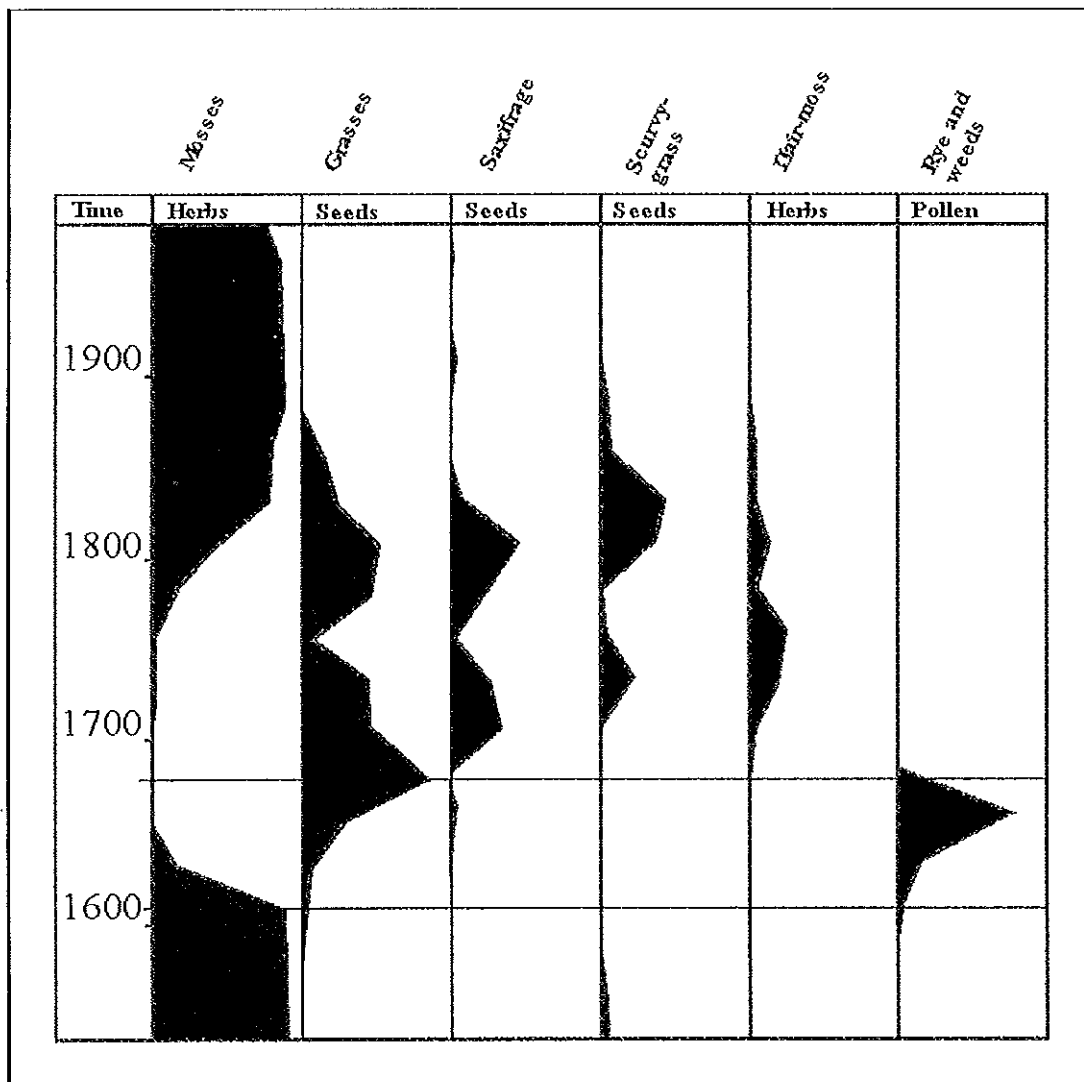


Figure 34: This pollen diagram shows the disturbance of the natural moss vegetation near the whaling settlement of Smeerenburg.

Epilogue

One of the characteristics of the Arctic region is its vulnerability to human activity. The low temperatures slow down the metabolic processes and the fragile ecological balance can be easily disturbed. Flora and fauna have managed to survive in this harsh environment. In fact, all creatures of the Arctic were adapted to their circumstances and lived in harmony with the polar environment. The discovery of several resources in Arctic regions by Western man changed the area from a living environment into a supply area of raw materials. It became a resource frontier region, whose resources were exploited as quickly and efficiently as possible to satisfy the needs of the industrialized countries, without considering the consequences for the natural environment.

Soon after the discovery of Spitsbergen by Willem Barentsz in 1596, the exploitation of its resources started. In the first decades of the whale-fishery, the Noordse Compagnie and the Muscovy Company had monopoly charters for whaling. In these, agreements were made fixing catches and prices. The annual amount of caught whales formed no threat to the survival of the species. In 1642, the charter of the Noordse Compagnie was not extended and whaling became accessible to everybody. The number of whaling ships in the waters of Spitsbergen increased enormously and the Spitsbergen whaling became a well-organized industry. When the annual catch exceeded 1000 in the 18th century, the whale population became seriously threatened until the stock was finally exhausted.

The exhaustion of the resources near Spitsbergen did not stop the whale-fishery. Until the 20th century, man searched for new whaling grounds after an old one was depleted. Commercial whaling became extremely efficient due to improved techniques. After the invention of the harpoon gun and steam whaling ships, the annual catch increased to 20000 whales in the 20th century. The whaling grounds were fished out at a rapid pace.

The Spitsbergen whalers took almost 200 years to deplete the local whale stock, whereas their 19th and 20th centuries counterparts fished out a whaling ground within a decade. Eventually, whale stocks were exhausted world wide and the hunting areas were left behind as totally ruined ecosystems. The commercial whale-fisheries had put their own livelihoods at risks due to their over-exploitation of the whaling grounds.

Nowadays, the concerns for the environment and nature have increased. Based on experiences of the past, like the whale-fishery, human exploitation of the Arctic resources should be of a sustainable and ecologically justified character. If this is the case, both the future of human economic activities and that of Arctic environment can be ensured.

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400th ANNIVERSARY OF THE DISCOVERY OF SPITSBERGEN BY THE DUTCH EXPLORER WILLEM BARENTSZ

Tialda Haartsen and Louwrens Hacquebord (eds.) (1996) 400th of the discovery of Spitsbergen by the Dutch explorer Willem Barentsz.

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